



INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week

Westward Ho!

Every Little Figure Has a Meaning

Their Territory IS Different

Political Subdivisions

Esoteric Details

The Eyes of America Are Upon Texas

Story of the Week

Five-year-old Sonny was being difficult. He simply didn't want to go to sleep. Every ruse to postpone slumber he could think of he tried—including the age-old "thirsty" gag. When, for the third time, he asked his Daddy for another drink of water, his sleepy parent snarled:

"Go to sleep! If you ask me for a drink of water once more, I'm going to spank you hard."

Came then a momentary silence.

"Daddy," the little boy piped up, "when you get up to spank me, will you please bring me another glass of water?"

Westward Ho!

Market planners should note that the seven western-most states in this country have shown their heels to the remainder of the nation since the war ended. As a region, the Far West has grown faster in every way than any other area of the United States (including mighty Texas!)

In addition to their immensely augmented population, the rapidly growing industries of these Pacific states have provided more work, their farms have produced more food, and their people have earned and are spending more money—comparatively speaking—than any other geographical section of our grand and glorious U. S. A.

The states we are talking about are California, Oregon, Washington, Idaho, Nevada, Utah, and Arizona. Between them they cover little more than one fifth the total area of the country; and now they hold only 11% of the population, or approximately 15,000,000 persons. (Before the war they contained only 9% of our populace, however). Today, 31% more people live in these states than lived there several years ago.

Here is a brief glimpse of some of the changes that have taken place out in the Far West during the past several years:

As you may well suspect, California has attracted most of the emigrants. And the larger and semi-large metropolitan areas are getting the bulk of the new Californians. Richmond and Alameda, for instance, are reported to have doubled their populations. The San Francisco Bay area, in general, has absorbed upwards of 40% more people than were there in 1939. Between 1939 and 1946, San Diego showed a 60% increase in population, and Los Angeles close to a 30% gain. The rest of the state had taken in slightly more than 30% more men, women, and children than were present before the advent of World War II.

Population in the Portland-Vancouver area jumped nearly 50%; and in the Seattle-Tacoma sector, 25% during that time. On the other hand, Idaho showed a net loss for the period. Nevada made strong gains up to 1944, but started to decline after that.

Every Little Figure Has a Meaning

The people represented in these statistics are more than just numbers on a zooming chart. They are house hunters, for one thing, and they are responsible for the fact that

(Concluded on Page 6, Column 1)

Proposal on Standard Compressor for Armed Forces Placed Before Industry

WASHINGTON, D. C.—A proposal for a "standard" refrigeration compressor for use by the military has been placed before the industry by a representative of the armed forces of the United States government.

The idea of a standardized compressor or "family" of compressors is said to have been presented to the Industry Joint Engineering Committee of the refrigeration industry by J. W. Millard of the Military Planning Division of the Office of the Quartermaster General.

It is said that the military advocates want equipment so standardized that parts for it could be made by contract machine shops, if necessary.

The industry, taking the proposal under advisement, apparently has some questions about the plan. For one thing, the question arises as to whether or not the idea is backed by all branches of the armed forces,

or is just an idea of the Quartermaster Corps.

The idea that just any machine shop can make refrigeration parts is one at which industry engineers look askance. They point to the close tolerances to which compressor parts must be held—calling for higher precision machining than is found in most manufacturing operations.

Millard, who was a Navy officer during the War, has stated that his program has been discussed informally with representatives of the Bureau of Ships, Bureau of Yards and Docks, and the Corps of Engineers. It was stated that in each case these representatives have indicated "unofficial" concurrence with the program.

The program is based upon the contention that during the war the compressors used by the Quartermaster Corps.

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New Power Users May Pass 2 Million

NEW YORK CITY—More than 2,000,000 new customers will be acquired by the electric power companies during 1947 if the record-breaking pace established in the first six months is maintained, according to Charles E. Oakes, president of the Edison Electric Institute.

Mr. Oakes reported that 1,102,000 new customers were added in the first half of this year, or an average of 183,000 a month. He said this average exceeded that for the record-breaking year of 1946 by 9,000.

With a gain of 9.2%, the west south central states registered the

(Concluded on Page 29, Column 1)

Hotpoint Buys 2 Former Allis-Chalmers Plants

CHICAGO — Hotpoint, Inc. has purchased the war surplus Allis-Chalmers plants Nos. 2 and 3, Milwaukee, from the War Assets Administration where facilities will be installed to manufacture electric water heaters, automatic dishwashers, sink tops, and cabinets with first operations scheduled for December, 1947.

Pending final certification of the transaction, Hotpoint, a General Electric affiliate, will start immediately retooling for the production of automatic electric water heaters and automatic dishwashers that will employ more than 2,000 employees when full conversion is completed. Meanwhile, an additional building, 100 by 500 ft., will be added to provide a high bay area to house large presses.

Modest Price Rises Noted In Small Appliance Lines

NEW YORK CITY—Modest price increases currently taking place on small appliances are being held to a minimum by manufacturers and reflect only the increasing costs of raw materials, some distributors here have reported.

Inference was that they believed manufacturers are making an honest effort to keep their prices in line.

One manufacturer of an automatic toaster, they said, discontinued a model he had been selling for \$18.75 and replaced it with a new model listing at \$19.95.

The new toaster, they noted, was of an improved design and did not merely represent a price increase.

A \$3 increase in the price of a standard make electric mixer was cited as an example of restrained pricing.

Kelvinator Ups Its Prices 4% As of Sept. 2

DETROIT—Because of continued rising costs of materials, and supply shortages which limit production volume, Nash-Kelvinator has increased suggested retail prices on Kelvinator and Leonard refrigerators, ranges, and home freezers approximately 4% effective Sept. 2.

Refrigerator and home freezer prices are increased \$10. Electric ranges are up \$10 to \$15.

Some Installations In Detroit Area Fail To Win City Approval

DETROIT—A number of installations of refrigeration and air conditioning equipment here are not being approved by the city's Bureau of Safety Engineering because the equipment lacks the seal of the Underwriter Laboratories or the A.S.M.E. stamp.

This was revealed by John C. Rehard, associate mechanical engineer of Detroit.

"I don't think it's a question of the manufacturers trying to get away with something; it's simply that they were not aware of these requirements," declares Mr. Rehard, who adds that it doesn't apply to refrigeration alone, for the same has been true of boilers, elevators, and other equipment over which this bureau has

(Concluded on Page 29, Column 2)

Price of \$284.95 Set on Presteline Electric Range

CHICAGO—A national price of \$284.95 has been established on its deluxe line of electric ranges by the domestic appliance division of the Prestel Steel Car Co., Inc. here, the company has announced.

This price, set on the S-11, S-101, and S-102 models, represents an average increase of 7% over the former four zone prices on these units, the firm added.

The increase, the first since the beginning of the year, is attributed to rising costs of steel, labor, and component parts.

Texas Opens the Door

FOOT IN THE DOOR



August 20th, 1947

Mr. George F. Taubeneck, Editor
"Air Conditioning & Refrigeration News"
450 W. Fort Street
Detroit, 26, Michigan

Dear Mr. Taubeneck:

This stationery may not represent some of the fruits of your labors, but it does represent some of the effects of your labors in the writing of the book, "One Foot in the Door"

The writer is employed by Cox & Blackburn, Inc., distributors for Frigidaire products. After reading your book, we felt that a club, organized for Frigidaire salesmen throughout the city of Houston, with a novel name attached, would be an inviting way to carry on a training program.

We have had two meetings. The first meeting we had thirty in attendance and the second (last night), we had forty-three. All our sales people seem very much interested and we are greatly indebted to you for giving us what apparently will be a very helpful idea.

Three copies of your book were given at our first meeting as attendance prizes and a very brief review was given to the group.

We thought you would be interested in hearing the above and wanted to express our appreciation.

Sincerely yours,

Richard Storey
Houston Storey Manager
Sales Training & Promotion

R3:99L

DEVOTED TO PERSONAL IMPROVEMENT IN SALESMANSHIP THROUGH FELLOWSHIP AND INDIVIDUAL DEVELOPMENT.

Nearly everyone in the appliance business agrees that the industry's biggest future problem is the lack of trained salesmen. In a sellers' market, it's difficult to recruit or even interest men in the profession of salesmanship. As a contribution toward the solution of that problem, the book "One Foot in the Door" was published this year. It has enjoyed considerable success; but the above letter is the first instance of a local group putting this book to the use for which it was intended. Specialty appliance dealers everywhere may find that this "Foot in the Door Club" idea will be a stimulus to their lagging sales training programs.

25 Firms Buy Steel Mill To Insure Supply

Big Syndicate Includes Gibson & Manufacturer Of Air Conditioners

PHOENIXVILLE, Pa.—Twenty-five manufacturers, including a refrigerator firm and a producer of air conditioning equipment, have purchased an ingot-producing steel mill for \$4,000,000.

In a move to combat the steel shortage, this syndicate a few months ago bought a sheet mill in Apollo, Pa. The newly acquired plant will supply ingots to the sheet mill.

Gibson Refrigerator Co. of Greenville, Mich., and Mitchell Mfg. Co., Chicago manufacturer of air conditioning equipment and lighting fixtures, are members of the syndicate. Officers of the group include Frank Gibson, secretary of Gibson, as a vice president, and Bernard Mitchell of the Mitchell firm, as treasurer.

Purchase of the mill will probably result in lower steel costs and increased production for the members, according to one spokesman for the group, but another official emphasized that the chief benefit from this move will be to "assure us a steady, reliable source of supply."

Phoenix-Apollo Steel Co. is the name under which the syndicate is operating, and it numbers among its members manufacturers from coast to coast producing a wide variety of products.

The mill, which has a capacity of 30,000 ingots a month, will begin operations under its new owners Sept. 15. It contains six open hearth

(Concluded on Page 32, Column 5)

Recold Distribution To Expand Nationally

LOS ANGELES—For the first time since the inception of the company, more than 15 years ago, Refrigeration Engineering, Inc., of Los Angeles, has announced an expansion program for the distribution of their products beyond the Far West.

"Recold," as the firm is familiarly known in the refrigeration industry, has since its founding, operated only in the West as a manufacturer.

However, the "water defrost" coil, which the company developed and patented in 1938, has been manufactured under license agreements throughout the United States by many refrigeration manufacturers.

Now "Recold" has announced that it will expand its activities to cover national distribution both under

(Concluded on Page 4, Column 5)

Air Conditioning and Commercial Sales Were Up In First Quarter

WASHINGTON, D. C.—Shipments of practically all classes of commercial refrigeration and air conditioning equipment showed increases in the first quarter of 1947 over the last quarter of 1946, according to figures just released by the Bureau of the Census.

Total shipments of condensing units in the first quarter hit 312,254 units, compared with 269,136 in the last quarter of 1946.

A total of 18,749 self-contained air conditioners were reported shipped in the first three months of 1947, as compared with 14,365 in the last quarter of 1946. (Tabulations on pages 22-23.)

U. S. PAT. 2,318,393
CANADA PAT. 374,709
NEW ZEALAND PATENT
#1,339

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"RECORD"

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Humid Air
Evaporators

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Dial Thermometers**

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Recalibrator

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Refrigeration Booklet

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McKeesport Butcher Pushes Self-Serve Meats

MCKEESPORT, Pa.—First semi-self-service refrigeration for an independent meat dealer in this area has been installed at Markovitz Market here, reports H. A. Feinberg, sales manager, Herben Equipment Co., 2630 Fifth Ave., Pittsburgh.

Markovitz's seven units occupying 22 ft. (12-ft. service, 10-ft. self-service) comprises 1) two walk-in coolers, 2) open self-service meat case, 3) service meat case, 4) open dairy case, 5) open frozen food case, 6) open vegetable case.

Powering these cooling units are six separate 1-hp. condensing units. If one motor breaks down, three cases don't go down with it, as could be the case in hooking up fewer motors of larger horsepower.

Operation is experimental. Adolph Markovitz is a modern merchant who believes there is a future in self-services.

His self-service meat (other items go into the dairy case) cases hold 1) ham, 2) lard, 3) sausages, 4) chops, 5) lunch meats.

Markovitz doesn't package too many of one item, replenishing his self-service cases when necessary during dull moments.

Home Repair Opens on Coast

SAN DIEGO, Calif.—Home Repair Appliance Co. is the firm name under which Charles G. Brown, Oscar Forteson, and Charles C. Moran have published a certificate that they are conducting business at 2907 Imperial Ave., San Diego.

Appliance Dealer Sales Defy Downward Trend, Increase 2% During July

WASHINGTON, D. C.—Sales by independent household appliance dealers during July increased 2% over June while sales by all independent retailers dropped 7% during the same period, the U. S. Department of Commerce has announced.

Appliance retailers' sales during the first seven months of this year were 58% higher than retail sales for the same seven months last year, the department added. July, 1947 retail sales topped July, 1946 sales by 41%.

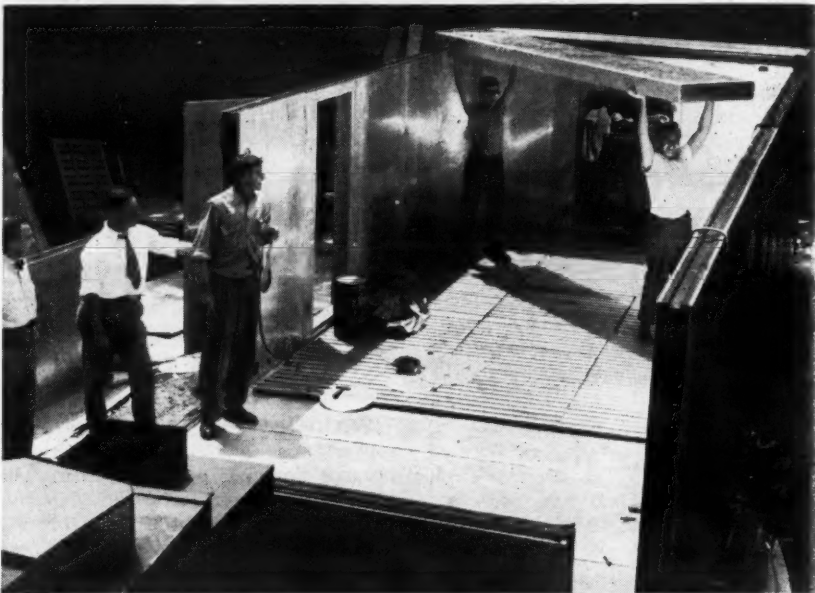
Radio and appliance dealers showed a 1% loss between June and July this year but their July sales were 35% higher than for the same month last year, the department said. Sales for this group in the first seven months of 1947 were 53% higher than for the same months in 1946, the announcement noted.

Trio Incorporates F & W Refrigeration In Milwaukee

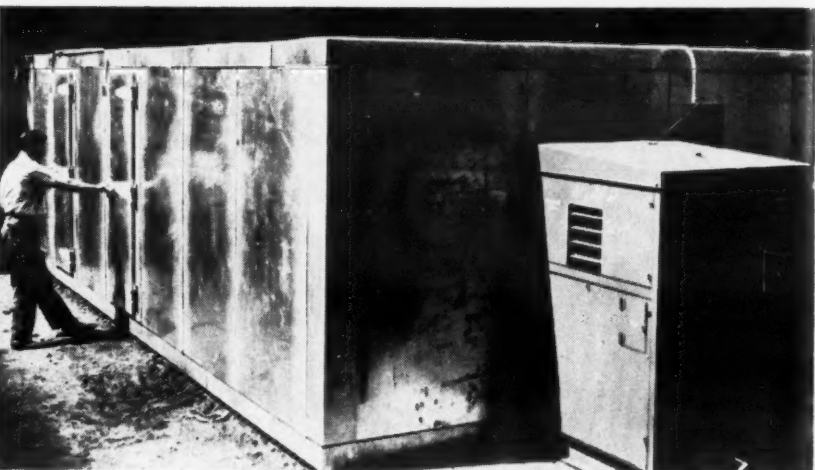
MILWAUKEE — Incorporation papers have been taken out by the F. & W. Refrigeration Co., Milwaukee, for the sale and servicing of refrigeration equipment of various types.

A capital stock of 40 shares at a par value of \$100 per share has been authorized by the state. The incorporators are Walter Fischer, William J. Wawrzonek, and Joseph P. Meyeroff.

Walk-In Assembled On-the-Spot In 47 Hours

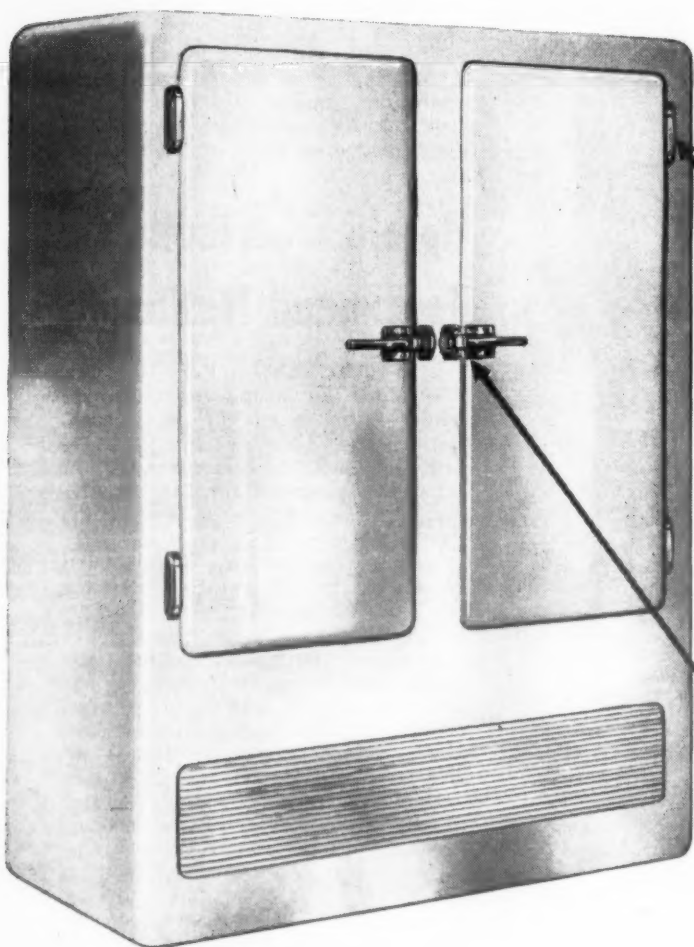


This view shows workers erecting the aluminum walk-in cooler—a process that took scarcely two days.



Completely assembled, the sectional walk-in has a packaged refrigeration system installed at each end.

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By National Lock



EDGE-MOUNTED HINGES
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"Roller Action" Commercial type Reversible Locks—also field tested for many years. Simplicity of design makes it suitable for all of your heavy duty applications. Various adjustable strikes available from flush to two-inch offset.



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REFRIGERATOR HARDWARE DIVISION

Reco Ships Huge Aluminum Pre-Fabricated Walk-In to Louisville Frozen Food Firm

PHILADELPHIA — One of the largest aluminum, pre-fabricated, sectional walk-in coolers ever made by Refrigeration Engineering Corp. here was recently shipped to the DuNary Corp., frozen food distributor in Louisville, Ky., Reco officials declared.

The cooler, which measures 33 ft. 7 in. by 12 ft. 1 in. by 7 ft. 6 in., will be used by the DuNary Corp. as a break-down room for the distribution of frozen foods to retailers and institutions, they said.

The cooler is divided into two com-

partments by an insulated partition which allows operation of one compartment while the other is not in use, they asserted.

The unit is powered by two 5-hp., air cooled, packaged refrigerated systems. Inside temperatures are held to 0° F.

The cooler was shipped knocked down into 48 insulated panels and assembled by DuNary in 48 hours, the Reco officials stated. They added that the refrigeration system was shipped along with the cooler completely assembled.

Coil Cleaning Specialist on Tour of Taverns Brings Lucrative Service Business to Contractor

PITTSBURGH — Use of a coil cleaning man servicing taverns is keeping service calls flowing into Arsenal Refrigeration here at a remarkably even rate, reports Mike Koppin, partner.

The specialist in coil cleaning while making contacts at taverns every week checks fans, conditions of motors, reports needs of customer,

tells the customer about it, and advises his company can do the job before the refrigerating unit breaks down. When the specialist comes into the office, he tells the nature of the trouble.

"We get this business," says Mr. Koppin, "and because the unit hasn't broken down, we can hold off these orders a couple days."



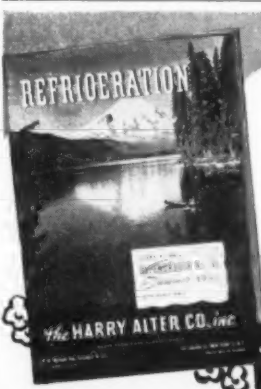
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Capacity 1000 Lbs. • Shipping Weight 40 Lbs.

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The Course to a Future

We're moving ahead into different waters. Business is sailing into a buyers' market.

And it may be rough going for some.

But, smoothing the way for each Kelvinator dealer will be his Kelvinator franchise. For it takes a buyers' market to bring out the sound concepts upon which this franchise was built and the realization of what its principles can accomplish for Kelvinator dealers.

It takes a buyers' market to bring into sharp focus Kelvinator's retail-minded policy of selective markets . . . and its meaning in each dealer's protection against shrinking territories and overcrowded dealerships.

It takes a buyers' market to reveal how well-known the Kelvinator name has become to the buying public. Tomorrow's shopper will be even more brand-conscious. She will be *Kelvinator*-conscious because steady, consistent, nationwide advertising has made the name of Kelvinator synonymous with *quality and extra value*.

It takes a buyers' market to show just how well a dealer is prepared to meet competitive selling. Kelvinator's great VIS training program has given "old-time" salesmen a new impetus and new men a selling background . . . and it has given both a confidence in their product and themselves that can only bring success.

Kelvinator retailers have found in their franchise a fuller confidence to meet the buyers' market of tomorrow. They've found its concepts "good reading . . . again in '47"!



You build a future with **Kelvinator**

RETAIL-MINDED

THE MOST VALUABLE FRANCHISE IN THE APPLIANCE INDUSTRY

DIVISION OF NASH-KELVINATOR CORPORATION • DETROIT 32 • MICHIGAN

Small Businesses To Have Ready Access To Information on Govt. Procurement

WASHINGTON, D. C.—Information on what the government is buying, where the purchases are made, and how the contracts are let is now available for the first time to business men at field offices of the U. S. Department of Commerce located in 46 cities in the United States and Alaska, J. L. Kelly, director of the department's Office of Small Business, has announced.

These offices will supply information on procurement by all Federal agencies including Army, Navy, Agriculture, Interior, Commerce, Justice, and the Post Office as well as the Bureau of Federal Supply of the Treasury department, which buys for all government agencies, he declared.

"In the past," Mr. Kelly explained, "Many small manufacturers and suppliers have had difficulty in offering their wares because of insufficient information concerning who buys

what.

"Now they can learn all they need to know by making one call on a Commerce field office. All the necessary information has been compiled in a single manual for the use of the field offices in assisting both the government agencies and small business men."

In addition, he declared, the Office of Small Business is cooperating with the various procurement agencies on a program to simplify procurement and bidding regulations.

"We are also working to have Federal specifications limited to essential elements," Mr. Kelly said, "and to bring about the development of zone purchasing in smaller lots."

"In the past many small business men have been prohibited from bidding by difficult specifications and policies that called for purchases in quantities that the small operator was unable to supply."

G-E Will Sponsor Radio 'House Party' Again Dec. 1

NEW YORK CITY—"House Party," the Monday-through-Friday radio show which General Electric Co. originally sponsored but later dropped, will again be backed by G-E starting Dec. 1, it was reported here.

At that time, the show m.c'd by Art Linkletter and aired by the Columbia Broadcasting System will be shifted from the 5 to 5:30 p.m. (Eastern daylight time) spot to the 3:30 to 3:55 p.m. (Eastern standard time) period. John Guedel will produce the presentation.

Daily prizes and a weekly grand prize will continue to be offered. Interviews with primary grade school pupils and a search for persons of peculiar distinction are among features of the program, which will reportedly cost G-E more than \$1,500,000.

"House Party" has been under co-operative sponsorship since G-E withdrew its backing. G-E introduced the show Jan. 15, 1945.

Westinghouse To Hold Price Line 'If Possible'

MANSFIELD, Ohio—No blanket price increases on its electrical appliances are planned by the Westinghouse Electric Corp., J. H. Ashbaugh, vice president of the company's electrical appliance division, announced recently.

"The electrical appliance division is attempting to make no increases even though the costs of materials, including steel, are increasing," he declared.

"We are continuing to study the problem of costs and may find it necessary to make some adjustments. We do not plan, however, to make any blanket price increases for Westinghouse appliances."

If any increase is required, more than steel costs must be considered.

Besides the steel factor, Mr. Ashbaugh pointed out that costs of such refrigerator components as compressor parts, door handles, shelving, and hinges have risen considerably and may still go up further.

Recold Expansion--

(Concluded from Page 1, Column 5)
license agreements and through distributors in principal trading centers of the country.

Simultaneously with the announcement of this new program, the company disclosed that the Refrigeration Division of the Sterling Mfg. Co. of Omaha, has been licensed to manufacture the water defrost coils in connection with the products produced by this division.

The Sterling Co. is one of the principal manufacturers of truck refrigeration and bus air conditioning systems.

Sterling Smith, formerly general sales manager of Baker Ice Machine Co., has opened offices under the name of Sterling Refrigeration Products, with headquarters in the Barr Building in Washington, D. C. His organization will handle all the sales of all products manufactured by Sterling's Refrigeration Division.

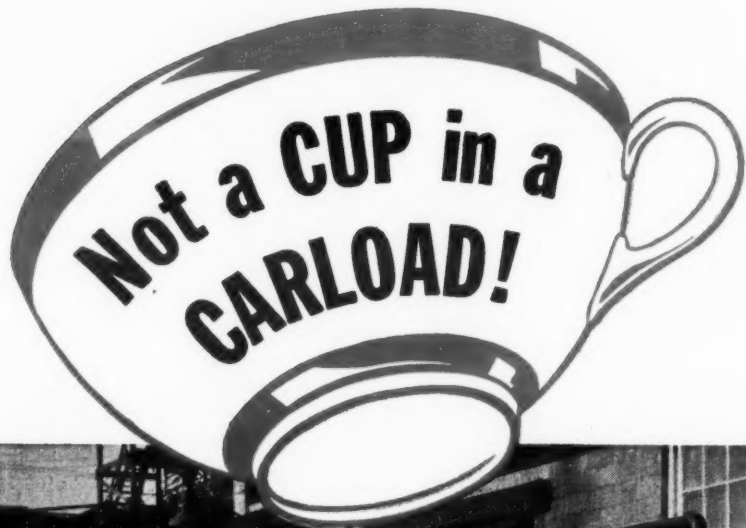
An announcement of other developments in line with the "Recold" expansion program will be made shortly according to Hy Jarvis, vice president and general manager.

Puerto Rican Hospital Will Use 2 Separate Air Systems

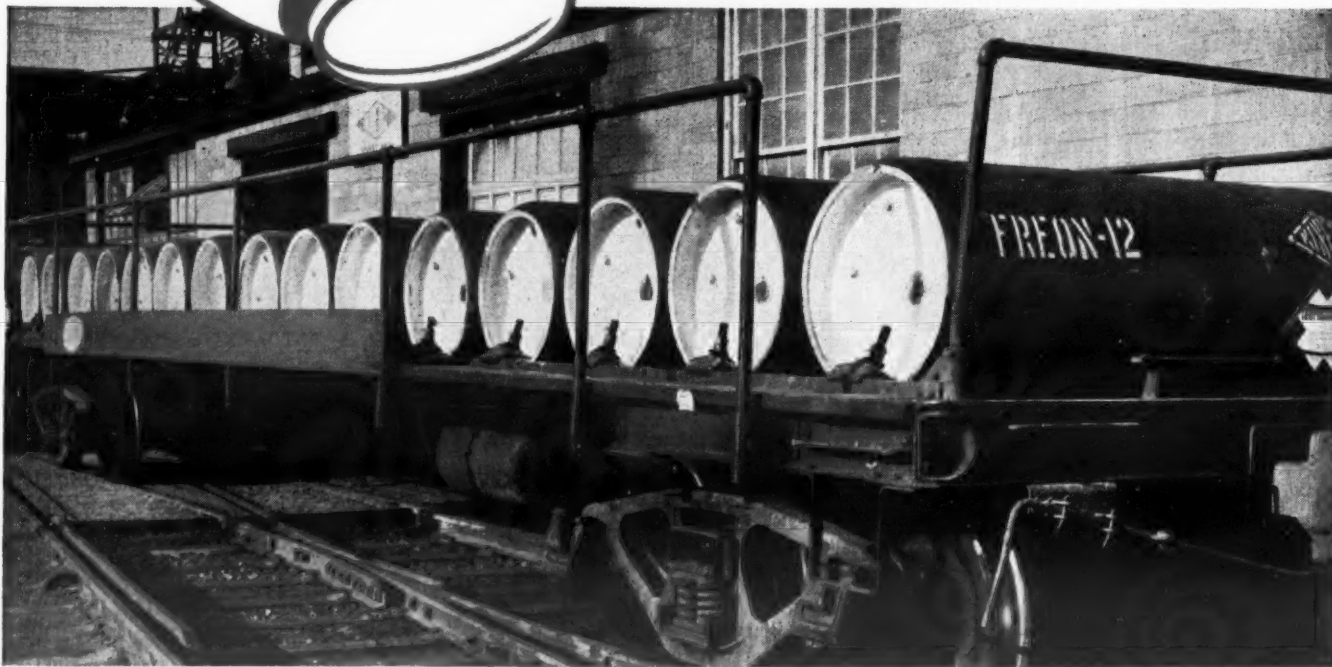
SYRACUSE, N. Y.—A 12-story professional building, now being constructed in the San Turce section of San Juan, Puerto Rico, will have two independent air conditioning systems for its doctors' offices and operating rooms, according to C. F. Carlton, manager of the Carrier Corp. Division of Martinez & Marquez, Inc., San Juan. The structure is expected to be completed early in 1948.

The second to the sixth floors to be used as doctors' offices will be equipped with 10 39Q "Weathermakers. The system will include reciprocating compressors with evaporative condensers and will make use of circulating chilled water from the basement.

The top two floors of the building, equipped as a hospital, will have five operating rooms. The air conditioning system will be separate from that of the lower floors and will make use of two Carrier 39Q Weathermakers using all outside air.



Moisture Content
of "FREON" Now Less
Than 10 Parts
per Million



Carload shipment of 15 one-ton drums of "Freon-12" contains less than a cupful of moisture!

The sensational dryness of "Freon" refrigerants—now less than 10 parts of moisture in a million parts of "Freon-12"—is the result of extensive laboratory research. To produce these drier refrigerants, new equipment was designed and installed in the plants where they are made.

The need for a virtually anhydrous refrigerant stemmed from the increasing popularity of frozen foods. New, compact household quick-freezers and locker plant refrigerating equipment, designed to operate at

lower temperatures than ever before, were needed to protect these frozen foods.

But since moisture in a refrigerant may freeze in the valves of low-temperature equipment, it was imperative that refrigerant moisture content be reduced to the absolute minimum. So now that "Freon" refrigerants contain practically no moisture . . . modern, compact, low-temperature quick-freezers, lockers and refrigerants are entirely practical and function safely, efficiently

and economically.

Because "Freon" refrigerants are as dry and as pure as scientific methods of production can make them, they are ideal for all types of commercial, industrial and household applications. That is why refrigerating engineers everywhere heartily endorse the use of equipment designed to utilize "Freon." Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

OUTSTANDING FEATURES OF "FREON" SAFE REFRIGERANTS

1. Freedom from moisture . . . now less than 10 parts per million.
2. Narrow boiling point range—confined within limits of $\frac{1}{2}$ °C.
3. Less than 2% of air in vapor phase.
4. Freedom from acids. There are none in "Freon".
5. Freedom from high and low boiling products.
6. Non-toxic . . . non-flammable . . . non-explosive.



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NATIONAL

AMERICA'S FOREMOST DRY BEVERAGE COOLER
FOR TAVERNS, RESTAURANTS, CAFES, CLUBS, PACKAGE STORES



Keep that appetizing flavor in the bottles with perfect dry cooling. No melting frost or water to wash off labels, no messing up of dispenser's clothes, and the cooling is at a steady set temperature circulating over the bottles at all times.

No other refrigerating method affords more sanitary and uniform satisfaction.

And National coolers are giants in structure, built to withstand years of use.

SPECIFICATIONS

Constructed of heavy gauge steel over reinforced frame; full 3" insulation; rust resisting steel interior with divided sectional partitions; full length fin coils behind protective baffle; guaranteed blower fan(s) to circulate constant cool air over contents; perfectly insulated, easy sliding, well fitted doors on sturdy stainless steel tracks; removable utility shelf for extra storage across entire back; drain and electric outlet at right end.

TWO BEAUTIFUL EXTERIORS

BLACK MOROCCO baked-on body, with entire top extending below front slant of shiny stainless steel including doors and track

or
ALL STAINLESS STEEL front, top and two sides, including door and track.

FOUR POPULAR SIZES:

15 cases (52"); 23 cases (74"); 31 cases (98"); 39 cases (118") for remote models. Add 29" to length, if portable model is wanted, for compressor housing.

DELIVERIES ALL MODELS WITHIN ONE WEEK



R-152-P

R-174-P

Portable model, available with or without compressor unit. Compressor housing is detachable if remote model is wanted and can be purchased separately. The next two larger sizes R-198-P and R-1120-P equipped with 4 sliding doors.

APPROVED AND ATTESTED BY THE MOST DISCRIMINATE USERS, FOR BEAUTY, PERFORMANCE, ENDURANCE



R-298

R 2120

Remote model; top, front and sides of polished stainless steel, including doors. Bar top shown is not standard equipment, but is available for all models if cooler is wanted as a service bar for which purpose back of cooler can also be stainless steel clad. The 2 smaller sizes R-252 and R-274 are equipped with 2 sliding doors.

MEETS ALL REQUIREMENTS FOR STATE AND LOCAL SANITARY CODES FOR CLEAN, DRY DISPENSING

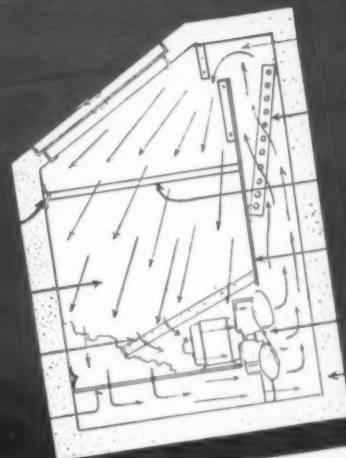


R-152

R-174

Remote model, our leading seller, including the 2 larger sizes R-198 and R-1120 which are equipped with 4 doors. Separate compressor housings, 29" wide, are available for portable use, easily attached.

Write for illustrated folder and prices.



The slant front and top—of stainless steel including the easy sliding doors—the inner dividing partitions for various brands, the removable extra utility shelf, all make for easy, quick serving comfort.

Sky High Quality at Down to Earth Prices

NATIONAL COOLER CORPORATION

1600 WOODLAND AVENUE CLEVELAND 13, OHIO

Manufacturers of Stainless Steel and Metal Restaurant Equipment

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

25% of the money spent in the U. S. on new homes since V-J Day has been pledged in this area.

These new West Coasters are workers. That is, their income depends upon their current output, rather than upon dividends. But, in greater percentages than the rest of the country, they are "white collar" folk. Nearly 40% of these newcomers to the Pacific Coast are professional men, clerks, and non-farm proprietors of small businesses.

They are buyers, too. On the whole, they have more money to spend than do their counterparts in other sections of the United States. Their incomes are higher and their savings are larger in comparison with the people they left behind them.

Therefore, their expressed demands for all kinds of goods are expected to keep this section of the country in a seller's market much longer than other sections of our fair nation may enjoy.

Their Territory IS Different

Reacting handsomely to the West's salubrious climate and its great wide-open spaces, lucky people who live there spend more for sportswear and less for heavy clothing than do

their eastern compatriots. And they contribute more money to gas stations, automobile dealers, and tourist camps than their somewhat circumscribed and inhibited eastern brethren.

Requiring less expenditures for home-heating fuel, they spend more on home furnishings and appliances than do their fellow-citizens in the older states.

These free-spending westerners, in their totality, have altered the picture for specialty appliance sales on the West Coast. As indicated above, these lusty innovators comprise quite a market.

Many eastern manufacturers now think it is wise to do their manufacturing for that market right in the middle of the Far West. Such moves enlarge the scope and broaden both

the premise and the promise of the economy of that region. Factory employment in this area jumped 68% last year over 1940. Isn't that significant? Manufacturing employment in the metal fabrication business, and in the prime production of oil, chemicals, and rubber industries accounted for most of this gain.

But that isn't all. Aircraft and shipbuilding plants on the West Coast, though greatly deflated from their wartime strengths, are still operating far ahead of prewar schedules.

Political Subdivisions

Each state in that area has developed particular industries of which it is proud. California, for instance, has expanded most in chemicals and metals. In Oregon and Idaho, the lumbering industry has registered the major boost. Utah has given greatest impetus to steel making. (Big factors in this expansion are the availability of steel from the Geneva steel works in Utah, the lower freight rates between this plant and West Coast centers, and cheap power rates.)

Impressive as this expanding Far West industrial picture may be to national market planners, they should remember that factory payrolls out there still provide only about one-seventh of the Far West's total income. Other important sources of Pacific Coast regional revenue are agriculture and lumbering, the lucrative tourist business, contributions from government sources (such as military and veteran pay), and dividends on investments derived by Easterners who have retired out there to take life easy and soak their bones in sunshine.

Esoteric Details

The Far West today is considered the fastest growing section of the country by many market researchers. Far Westerners are inclined to agree with this dictum. Vast majorities of the Pacific's Coast's businessmen foresee bright horizons for themselves and for the region they have chosen.

They pooh-pooh the idea that a possible national recession will stunt their growth. They believe that, if it affects them at all, such a recession would not be felt as seriously there as it may be noted in other parts of the country.

Like American businessmen in any state or county located west of the Alleghenies, these entrepreneurs insist: "But my territory is different."

They're ultra-confident in their belief that business will get better and better in their area.

We think it will, too.

The Eyes of America Are Upon Texas

America's Southwest, prolific producer of raw materials for the maw of the greatest industrial nation of the world, looks to the future with confidence. Southwestern businessmen agree almost unanimously that the outlook for their section of the nation is most promising.

And why not?

Aren't Texas and her neighbors (New Mexico, Oklahoma, Arkansas, and Louisiana) enjoying an unsurpassed demand for their primary produce, such as oil, lumber, meat, chemicals—yes, and cotton?

Aren't Southwesterners enjoying more than double the average income they were earning in 1939? Aren't surplus tenant farmers and sharecroppers in this region being pushed into the cities by the rapid

mechanization of farms? And aren't these displaced farmers finding a ready welcome for their labor in the Southwest's industrial centers which grew up during the war, and which are continuing to thrive despite the withdrawal of war's demands? And aren't the prospects of securing Latin American trade through the many deep channel ports along the Gulf of Mexico bright indeed?

Surveyors of the Southwest can see no reason why this region should take a dim view of the future.

It isn't the same place it was before the war.

Take cotton, for instance. Back in 1929, five states produced 49.3% of the nation's cotton supply. They derived 46% of their total farm income from that crop. But at the end of World War II, they were producing less than 42% of the nation's cotton, and they were getting less than 17% of their income from that crop. And that's progress.

Many Southwestern farmers have turned their fields over to the production of wheat, grain sorghums, and feed for livestock. Noting that high prices for these commodities are quoted, they have decided to continue producing them, instead of so much cotton.

Or take oil. Producers of "black gold" have brought fame and spectacular fortunes to the Southwest. During the war, with its insatiable demand for petroleum products, this area's production leaped and bounded.

The war's end found the Southwest producing 64% of the nation's supply of oil. Yet, our nation and all the world needs more and more. So, oil geologists now are probing the depths of the Gulf of Mexico—hoping to find underseas at least as much oil as has already been discovered on the mainland of the Southwest.

And then there are chemicals.

A war-born baby, as far as the Southwest is concerned, the chemical industry seems to have found a natural home there. Abundant oil and natural gas for fuel combine with more than 100 different kinds of raw materials to make the Southwest a prime region for the development of chemicals and synthetics.

Southwestern citizens have more money in their pockets than do their compatriots in some other sections of the nation. And so many of these citizens are darned good customers for consumers durable goods. For instance, Southwesterners are now spending 3.8% more for building materials and home furnishings than are residents of the Atlantic Seaboard.

Due to the gradual process of farm mechanization, Southwestern ruralists are moving to the cities in substantial numbers. Texas cities are the biggest recipients of new blood. Dallas and Fort Worth have absorbed at least 30% increases in their population during 1940-7. Houston about 27%, and San Antonio more than 20% during that time.

Shifts in population have not affected each of our southwestern states evenly. Only Texas and Louisiana have shown total gains in population over pre-war years. Texas added about 10% more people and Louisiana about 5% during the 1941-5 interval. New Mexico stayed about the same. Oklahoma lost around 6% of its inhabitants through the war years, and Arkansas was drained a bit, also.

No, the Southwest is not the same as it was before the war. But the change is all for the better, and Southwesterners are the first to say so.

To market planners we suggest: reappraise the Southwest. It should figure larger in your plans.

SINCE 1939...ZEROSAFE

by WILSON

THE GREAT NAME IN FREEZER DESIGN

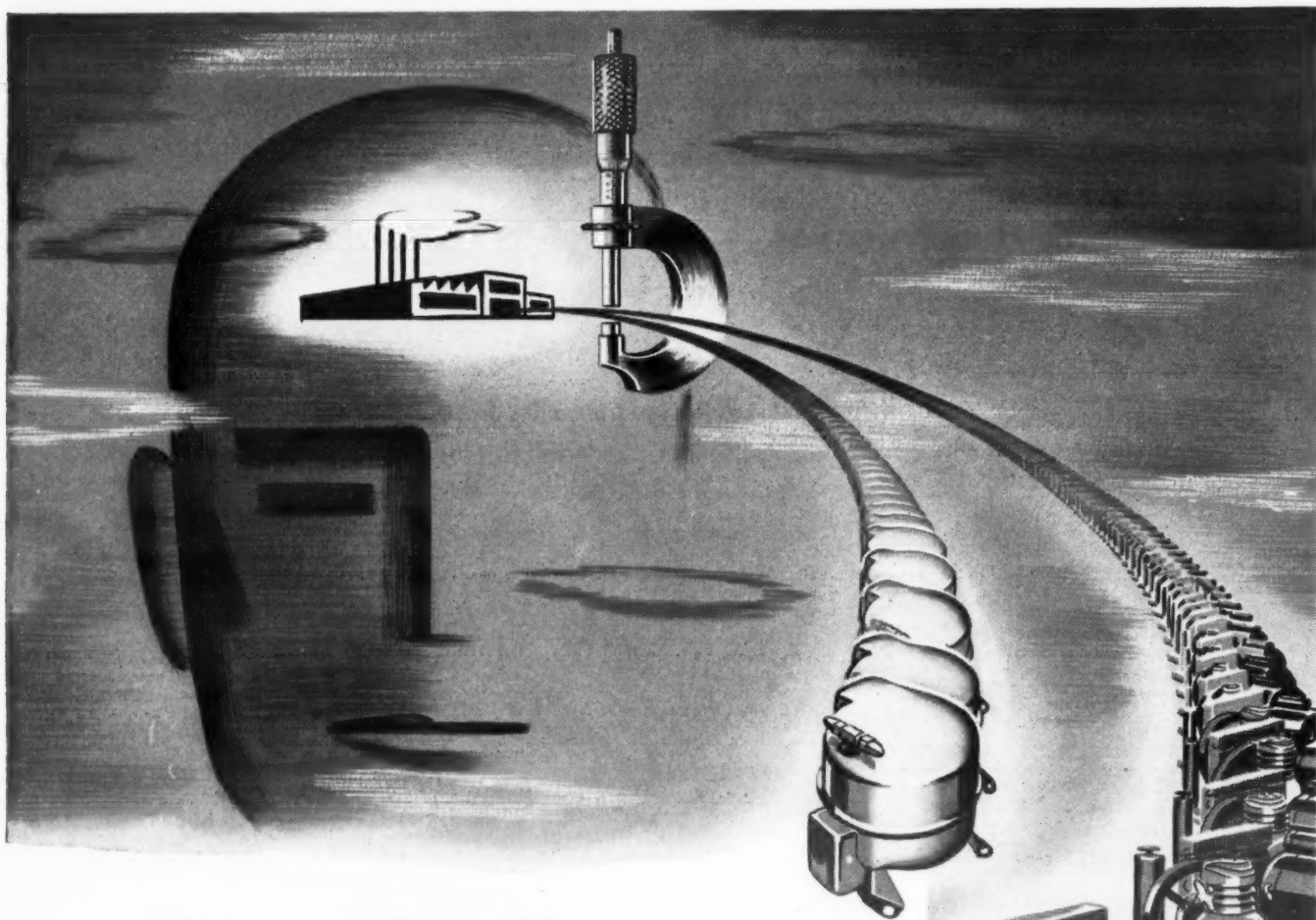
SINCE 1939 Wilson ZEROSAFE has been the greatest reach-in farm freezer in America... THE NEW WILSON ZEROSAFE IS NOW GREATER THAN EVER BEFORE... Not a toy, but big, ruggedly beautiful, efficient, with stamina for years of low-cost operation.

SIZES FOR EVERY NEED FROM 15 TO 120 CU. FT.



WILSON ZEROSAFE FARM FREEZER
Sectional Model FF-60

FOR FRANCHISE INFORMATION ADDRESS DEPT. II: WILSON REFRIGERATION, INC., SMYRNA, DELAWARE



Ideas plus Vision

LEAD TO ADVENTURES IN BUSINESS



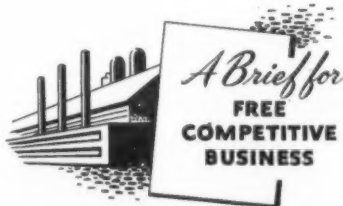
Go back to the beginning of any American business enterprise and you're almost sure to find men with a single, sound, basic idea... and vision. Add plenty of nerve, a righteous

share of luck, the favor of a free economy... and you have what it takes to start out on an American business adventure. It's a rough road and the risks are great, but the rewards run high in personal fortune and satisfaction. This is the challenge and the promise that has made America great.

Tecumseh Products Company had its beginning in 1931. Its basic "idea"... the application of mass production and precision machining methods to the manufacture of compressors and condensing units. Its "vision"... more units, better units, less expensive units that would result in wider distribution of complete refrigeration equipment. Its "market"... manufacturers of complete products who were not set up to produce their own units and who could not find competitive sources in an industry largely influenced by a few major manufacturers.

TECUMSEH PRODUCTS COMPANY

Tecumseh, Michigan



Wall WIRE
PRODUCTS COMPANY
PLYMOUTH • MICHIGAN
Makers of
REFRIGERATOR SHELVES • STAMPINGS
FORMED AND WELDED PRODUCTS

The trend continues toward Stainless Steel. Do your designs for next year include more cabinets with Stainless Shelves?

Never Before

A Service Bar Like This!

Note These Features...

1

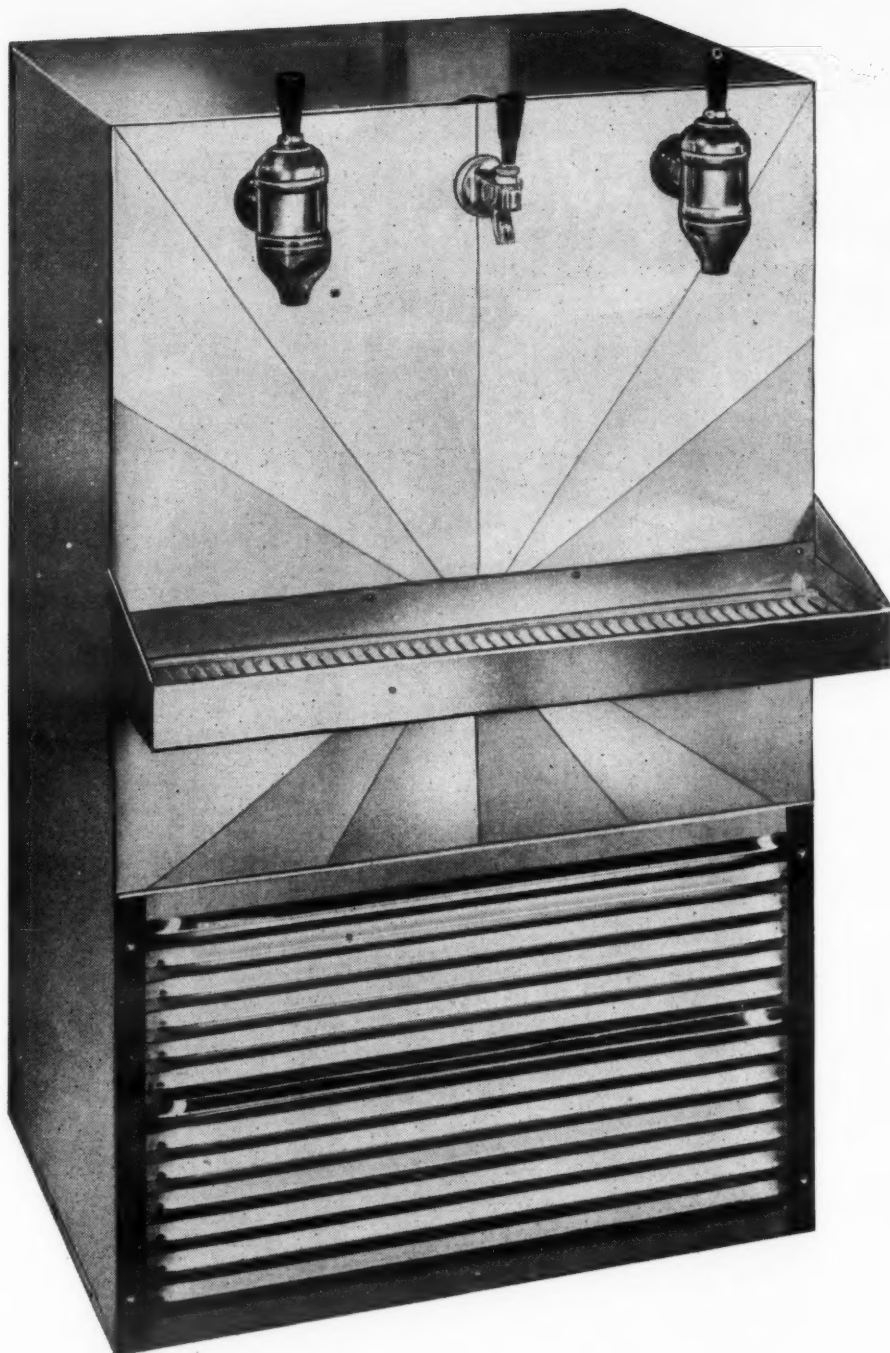
Complete, self-contained . . . includes 3-Way Drink Dispensers, Carbonator, Drinking Water Faucet, Compressor unit, complete cooling system (ice cabinet if desired), syrup tanks, all in a single unit. Heavy angle iron frame, stainless steel lining. Needs only to be attached to water line and drain.

2

Sensational Hudson 3-Way Drink Dispensers—one, two, three or four of the amazing new profit makers mounted in each RAMco Bar as desired by purchaser. Two different carbonated drinks plus sparkling soda provided by each 3-way dispenser.

3

Plenty of cold, sweet drinking water. Large coils provide ample supply of drinking water, properly cooled and ready to serve.



4

Hudson Constant Pressure Carbonator installed complete, inside the bar. No motor, no pump, 25 gallons or more per hour. The carbonator that is the sensation of the trade.

5

Nationally known, thoroughly dependable compressor unit provides adequate refrigeration (ice compartment optional as desired).

6

Handsome stainless steel finish. Beautiful Sunburst design. Entire bar, complete, Model RM #12 shown, width 30 inches; depth 16 inches; height adjustable, 39 to 41 inches. Complete line of models and sizes for floor or counter installation.

The Only Complete, Self-Contained Carbonated Beverage Unit

CONVENIENT, FLEXIBLE SERVICE

The new Hudson 3-Way Drink Dispensers offer something never before possible in bar convenience. Imagine, no more bottles, no more cases stacked up in the back room, no more bottle deposits and breakage losses. Each 3-Way Dispenser provides for 2 flavors, plus sparkling soda. It's possible to draw ginger ale, soda and cola from one faucet, lithiated lemon, soda and any other popular flavor from another, all mixed in perfect proportions, sparkling, properly cooled, ready to serve. And the cost is a mere fraction of bottled drinks.

A SALES SENSATION

The RAM-co Service Bar fills an acknowledged need for taverns, restaurants, cafeterias, ice cream bars, theatre lobbies, drive-ins, amusement parks, drug stores. Its compactness, its convenience, its surprising low cost are winning interest everywhere. Alert dealers see the big sales possibilities of this unit. Territories are being assigned.

BIG MONEY FOR YOU

Be the first to offer the RAM-co Service Bar in your territory. Figure for yourself the money you can make. Don't miss this Big Profit opportunity. The RAM-co Service Bar is the year's sensation. Great for both U. S. and export. Phone or wire for discounts and territory details now.



RAM-CO

COMPANY

1418 WEST 29TH STREET • CLEVELAND 13, OHIO

Phone PROspect 1203

Canadian Subsidiary Set Up By Rheem In Ontario

LOS ANGELES—Rheem Mfg. Co. through its president, R. S. Rheem, has announced the formation of a subsidiary company in Canada, to be known as Rheem Canada, Ltd. The offices and plant of the new company are located in Hamilton, Ontario.

President of the newly formed company is R. S. Rheem. Other officers are Trumbull Warren, vice president and general manager; Ronald L. Marks, secretary-treasurer; E. L. Prais, production manager.

Rheem Canada, Ltd. will manufacture steel shipping containers for the petroleum, chemical, food, paint, and other industries. Other products similar to those made in the Rheem plants in the United States will be added at a later date.

Wisconsin Power & Light Service Charge Schedule Guides Dealers On Repair and 'Outside' Calls

MADISON, Wis.—As a guide to electrical dealers, the Wisconsin Power & Light Co. recently released its schedule of service charges, subject to change as costs increase.

The schedule follows:

Repair in shop: Minimum charge 25 cents for 10 minutes or less. If over 10 minutes, the rate is 45 cents for each 15 minutes or fraction thereof.

Repair on customers' premises or pickup, repair, and delivery: If 30 minutes or less, including travel time, are spent on the call, minimum charge is \$1.00 and "minimum charge" is written on the ticket in place of the hours and rate.

If over 30 minutes are spent on the call, the rate is \$1.80 per hour, including travel time.

Overtime work: When a customer requests that work be done in overtime hours and agrees to pay the additional charge, the following rates apply:

If 45 minutes or less, including travel time, are spent on the call, the minimum charge is \$2.00 and "minimum overtime charge" is written on the ticket in place of the hours and rate.

If over 45 minutes are spent on the call, the overtime rate is \$2.70 per hour including the serviceman's travel time.

Output of Birdseye Frozen Food Vendor Begins In '48

CHICAGO—United States Vending Corp. of Chicago announced Sept. 3 an exclusive agreement with Clarence Birdseye of frozen food fame for the manufacture and sale of his recently perfected automatic coin-operated frozen food dispensing equipment. Production is scheduled for early in 1948.

Nash-Kelvinator will manufacture the cabinets and refrigerating mechanism. The patented device will vend frozen foods and ice cream in a variety of different-sized packages and includes an adjustable change-making feature permitting adjustments according to price variations.

The company claims the mechanism will not "frost-up" from condensation at sub-zero temperatures.

Wilson To Introduce New Products at Eastern Show

SMYRNA, Del.—John E. Wilson Jr., president of Wilson Refrigeration, Inc., a division of Wilson Cabinet Co., announces that three new Wilson products would be introduced to distributors, dealers, and the general public at the Eastern States Exposition to be held Sept. 14-20 at Springfield, Mass.

The new Wilson "Hi-Boy" home freezer, especially designed for adequate frozen food storage in urban homes, will be featured. The other new equipment scheduled for showing is the Wilson "StorSAFE" reach-in refrigerator for food storage and the Wilson "Reach-in" beer and beverage cooler.

In addition to the introduction of the three new models Wilson Refrigeration, Inc., will also display and demonstrate other Wilson equipment, such as farm freezers, walk-in freezers, cold storage rooms, and the Zero-Flow and Verti-Coil milk coolers.

The Eastern States Exposition is one of the largest of its kind and draws crowds from all of the East, particularly from the New England and Middle Atlantic states.

NRDGA Urges Dealers Aid Govt. Price Probe

WASHINGTON, D. C.—Cooperation in giving all the facts on prices to price investigating Congressional committees has been urged on the country's retailers by the National Retail Dry Goods Association, it was reported here.

Fearing that the public, suspicious of price conspiracies, might hold off buying until learning the results of the investigations, the N.R.D.G.A. in its bulletin to members, expressed the hope that the investigators would not turn their activities into a rivalry for newspaper headlines.

The Association further expressed the feeling that such conspiracies could not exist in the retailing field and disclaimed any knowledge of them in other fields.

It added that if they did exist, any honest business man would want to expose them and bring them to an end.

Hospital Job Awarded

UTICA, N. Y.—Installation of a new 500-pound capacity refrigeration unit at the Oneida County Hospital here will cost the county \$2,150, according to a contract awarded by Frank M. Williams, county purchasing agent.

Utica Refrigeration Engineering Co. offered the successful bid in that amount. A bid of \$2,100 was presented by the Graham Sales, Yorkville, for similar equipment but the bid was declared "informal" as it was not accompanied by the required check.

Harnish Gets Deepfreeze Post

SEATTLE—Robert F. Harnish, formerly an appliance dealer here, has been appointed sales manager of the Seattle district for the Deepfreeze division of Motor Products Corp., F. F. Duggan, Deepfreeze general sales manager, has announced.

Mr. Harnish, who is said to have extensive experience in retail and wholesale appliance sales, will work with B. G. Sanderson, Deepfreeze western regional sales manager at San Francisco, Mr. Duggan declared.

—none better

**MIRACOO
WALK-IN
COOLERS**

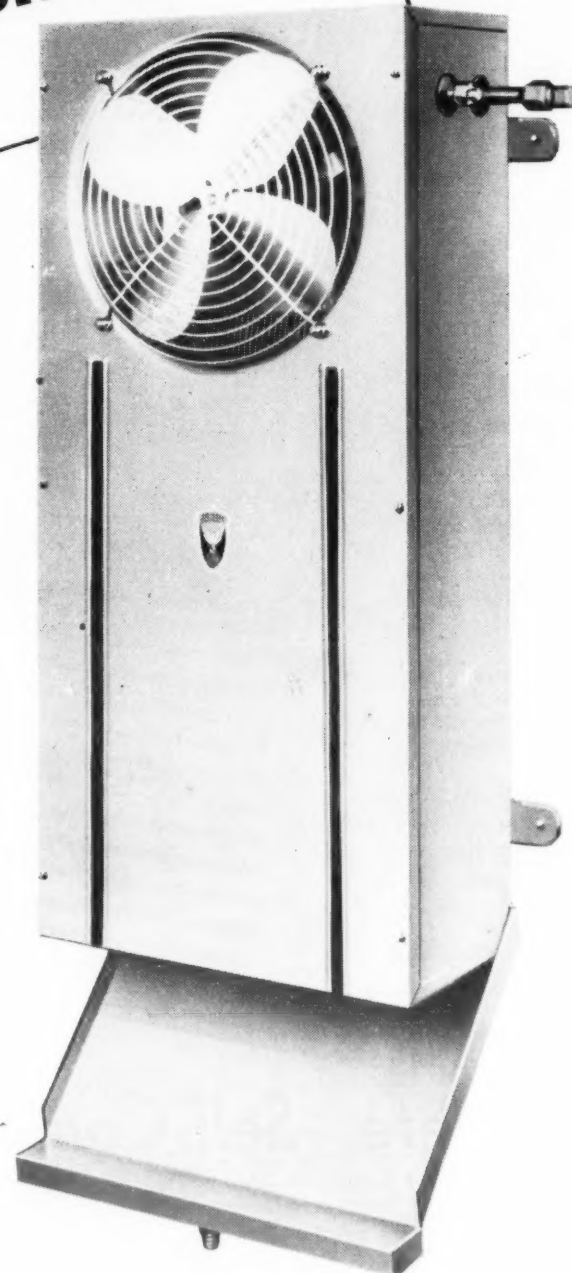
The Cleveland Refrigerator Co.
2901 E. 65th St., Cleveland 4, Ohio

A Packaged Power Plant of REFRIGERATION THE *Peerless* GUN COOLER

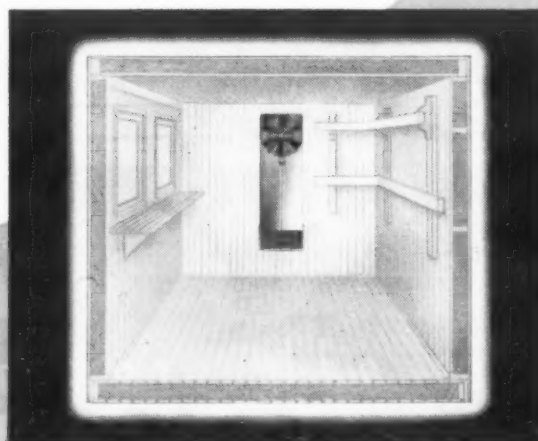
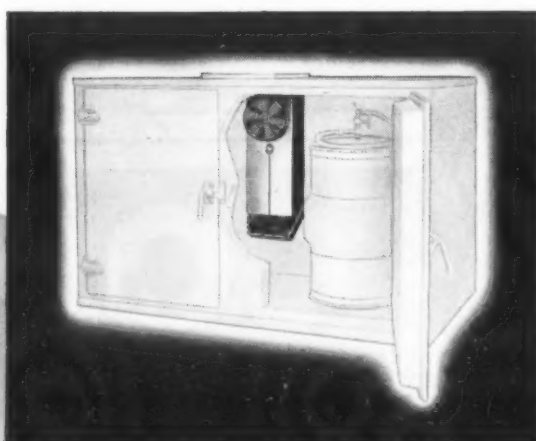
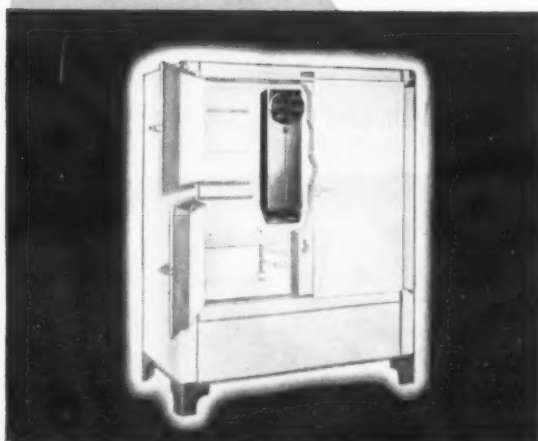
● You'll marvel at the ease and speed with which the PEERLESS Gun Cooler is installed and your customers will marvel at the instant response and unfailing performance of this compact cooler. It is literally a power plant of refrigeration — all in one package. Installation is accomplished by means of very simple exposed hangers, easily accessible. Install it on the wall in Reach-In or Walk-In Refrigerators, Back Bars, etc.

● The Gun Cooler employs "upside-down" refrigeration — a "FIRST" conceived by PEERLESS. Warm air is drawn into the grill at top of cooler, is chilled to the required degree, and poured gently out the bottom. It absorbs heat from stored products as it rises to be re-chilled by the Gun Cooler. Simple, but effective! PEERLESS Gun Coolers are quick, sound, and satisfactory answers to many a refrigeration problem.

PEERLESS of AMERICA, Inc.
General Sales Offices 2901 Lawrence Ave.
CHICAGO 25, ILLINOIS, U. S. A.



● For superior performance specify all these PEERLESS products: Flash Plates, Flash Coolers, Unit Coolers, Ice Cube Makers, Fin Coils, Off Center Coils, Expansion Valves and Capacity Boosters. Write for details.



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WITH THAT SEGMENT OF THE PUBLIC TO WHOM YOU

LOOK FOR PROFITABLE SALES. TO BE EFFECTIVE IT

CAN'T BE STATIC. CONDITIONS CHANGE. COMPETITION

CHANGES. COMMERCIAL CREDIT PLANS FOR THE

COMMERCIAL REFRIGERATION INDUSTRY KEEP PACE FLEXIBLY

WITH THE REQUIREMENTS OF CHANGING MARKETS. YOUR

COMMERCIAL CREDIT REPRESENTATIVE CAN GIVE YOU

PRACTICAL HELP IN SETTING UP A FINANCING OPERATION

TO FIT YOUR PARTICULAR NEEDS. CALL HIM IN.

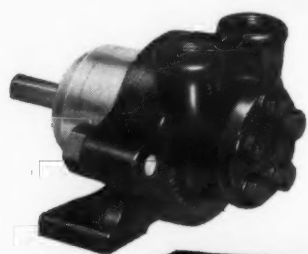
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You can't beat Tuthill small pumps for pressure lubrication. These positive delivery, internal-gear rotary pumps are mechanically sealed to provide quiet, leakfree, and dependable service with minimum power consumption for operating economy. Capacities up to 3 g.p.m. in wide pressure ranges. Write for Model L industrial pump bulletin today.

TUTHILL PUMP COMPANY

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Prepackaged, Refrigerated Vegetables Keep 2 to 7 Times Longer Than Others In Test

By Chas. W. Hauck and John J. Crawford*

A study of the shelf life of a wide selection of fresh fruits and vegetables was reported in the July-August 1946 edition of the Bimonthly Bulletin of the Ohio Agricultural Experiment Station. Since that time additional research has been conducted dealing in greater detail with seven of the more perishable vegetables, in co-operation with a corporate chain grocery company operating in Columbus.

The investigation discussed herein comprised one phase of a research project financed in part by a grant-in-aid by the Great Atlantic & Pacific Tea Co. The company's wholesale and retail operation in Columbus was thrown open to study. The Departments of Rural Economics and Horticulture of the Ohio Agricultural Experiment Station collaborated in this aspect of the project.

Definition of 'Shelf Life'

The term "shelf life" may be defined as the period of time during which the merchandise received by the retailer remains fresh, attractive, and sufficiently appealing to patrons as to be readily salable without price reductions. In this report it is used interchangeably with the term "salable life."

The controls under which the previous study was carried on included

*In a report of the Ohio Experiment Station.

Table 1—Per Cent of Delivered Weight of Seven Produce Items Remaining Salable After Successive Days of Retail Display

Commodity	Ordinary Room Conditions					Fine Cracked Ice					Mechanical Refrigeration				
	1	2	3	5	10	1	2	3	5	10	1	2	3	5	10
Beans, green	90	82	49	0	...	96	95	87	38	0	99	98	96	94	36
Broccoli	88	0	...	...	...	95	92	54	48	0	97	96	94	92	10
Cauliflower	92	49	0	...	...	98	96	93	46	0	99	98	97	95	36
Celery	91	83	47	32	0	100	98	73	41	22	99	97	96	95	18
Endive	86	58	0	...	...	96	90	63	0	...	97	95	94	91	0
Lettuce	87	78	55	0	...	92	90	90	34	28	95	93	86	82	8
Peppers, green	97	94	30	0	...	100	99	98	94	21	100	99	99	99	14

average room and mechanical refrigeration conditions as they affected pre-packaged and bulk produce.

Normal room conditions consisted of temperatures ranging from 66° to 77° F., averaging 71° F. and relative humidity varying from 28% to 38%, averaging 33%. Mechanical refrigeration conditions consisted of temperatures ranging from 36° F. to 40° F., averaging 39°, and relative humidity varying from 75% to 90%, averaging 85%.

Cracked Ice Study Added

This later study utilized a cracked ice display counter in addition to the above-mentioned controlled conditions.

The produce used as samples for this study was selected at random from commercial lots at the time of deliveries to retail stores. Shelf life as indicated in Table 1 was considered to have begun at this time of selection.

For each vegetable, six sample lots were retained under the conditions described above. A sample lot consisted of two to four consumer units (the quantity of an average retail purchase—one head of cauliflower, one pound of green beans, three peppers, or one bunch of broccoli).

Amounts Used In Test

The number of tests and aggregate number of consumer units used were as follows:

	Number of tests	Aggregate number of consumer units
Beans	2	30
Broccoli	3	36
Cauliflower	2	42
Celery	3	36
Endive	2	30
Lettuce	3	42
Peppers	2	24

Methods commonly employed in retail stores were used to determine salability during this study. Bulk produce was reconditioned daily by removing unsightly portions; for example, the trimming of head lettuce or the sorting of green beans. When the weight loss from trimming and dehydration was great enough, or when the produce had definitely deteriorated in appearance, the bulk produce was discarded as unsalable.

Pre-packaged produce was constructed to be totally unsalable when any portion of the contents of the package deteriorated in condition as judged by its appearance.

This was in accordance with the policy of the co-operating chain store company which was to reduce prices promptly as soon as a decline in the quality or freshness of any item became apparent, re-offering the

goods either in the original package or in bulk after sorting and trimming, even though 50% to 80% of the contents often was of top quality after this reconditioning.

Records were maintained until the last unit of each sample lot became unsalable. All or parts of some of the original samples remained salable for many days. For example, 10% of the original weight of the pre-packaged and mechanically refrigerated celery remained in salable condition for 5 days, 7% of the lettuce for 26 days, 12% of the broccoli for 31 days, and 41% of the endive for 21 days.

Pre-packaging and mechanical refrigeration (Concluded on next page)

He saves engineering time—



D. R. PERCIVAL, Electrical Engineer, Machine Division, Norton Company

"I think a lot of us designers will save time in the long run if we'll decide, at the start of a job, to use standard motors." Thus speaks D. R. Percival, Electrical Engineer, Machine Division, Norton Company. "We'll eliminate the exhaustive engineering tests we used to make on fractionals. With horsepower, service factor, breakdown

torque, and starting current all rated on a clear-cut, uniform basis we'll know in advance whether the motor will handle the job."

He cuts production corners—

"The big thing about the new small-power motor standardization plan, to me, is the promise it holds of increasing the availability of all makes of motors," says Ben B. Breslow, President, Utility Appliance Corp. "We'll stand a better chance of getting 'off-the-shelf' delivery of motors if they are a big production item, instead of a special. We cut a few production corners, too, by using standards. We eliminate special jigs and fixtures, and the need for making universal mounting bases and adapter plates. We can 'standardize' more of our own assembly methods."



BEN B. BRESLOW, President, Utility Appliance Corp.

More for your money with STANDARD



fractional-horsepower

MOTORS

GENERAL ELECTRIC offers you three advantages as a source of fractional-hp motors. First, we give you the widest variety of standard general-purpose and definite-purpose motors to choose from—some 1600 in all. Second, General Electric motor-exchange and repair-service plans have been developed on a country-wide scale to give prompt, low cost motor repair or replacement service to your customers. Finally, in all G-E motors you get the quality extras which standards can't cover. You get the benefit of the newest developments in bearing design, insulation, and winding techniques. You get the best possible protection against electrical breakdown and mechanical wear and tear.

THE NEW MOTOR AND INDUSTRY STANDARDS for defining motor rating and performance and the new dimension standards for small-power general-purpose and definite-purpose* motors were arrived at after study of thousands of motor orders and months of co-operative work by industry associations and the National Electrical Manufacturers' Association. And—these standards will be modified as design trends change, to keep in step with user needs. Standardization is not static!

FOR EXAMPLE, the General Electric machine tool motor is engineered specifically for rough industrial service. Totally enclosed, these motors have a rigid base and ball bearings which fit them for jobs where thrust is encountered. Firmly anchored windings stand up under frequent start-stop service, plugging, and momentary overloads. Descriptive bulletins on this and other standard G-E motors listed below are available on request. Apparatus Department, General Electric Co., Schenectady 5, N. Y.



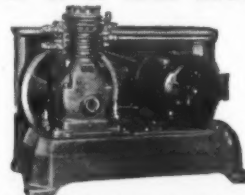
Unit-bearing Fan	Belted Fan
Washing Machine	Coal Stoker
Oil Burner	Jet Pump
Machine Tool	Shaft-mounted Fan
Gas Pump	Sump Pump
Hermetic Refrigeration	General Purpose

* Definite-purpose motors are standard motors specifically designed for jobs where general-purpose motors (built for road application) are not ideally suited.

GENERAL ELECTRIC

ALL STAR PERFORMANCE

BACKED BY 30 YEARS EXPERIENCE



- DEPENDABLE SERVICE
- RUGGED CONSTRUCTION
- ECONOMICAL OPERATION

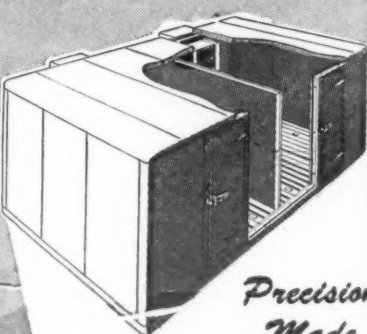
GENERAL REFRIGERATION DIVISION
Yates-American Machine Co., Beloit, Wis.

Lipman
AUTOMATIC REFRIGERATION

New Model "RECO-FAB"

ALUMINUM EXTERIOR AND INTERIOR FREEZE COOLERS

FOR ZERO OR MEDIUM TEMPERATURES
• LIGHT IN WEIGHT • SIMPLE TO ERECT, MOVE OR ENLARGE

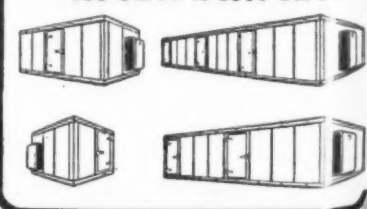


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SELF-CONTAINED REFRIGERATION SYSTEM EQUIPPED WITH BLOWER COIL AND RECOMATIC DEFROST OR WITH SHARP FREEZING EQUIPMENT.

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REFRIGERATION ENGINEERING CORP.
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Results Cover 10-Day Storage with Room Conditions, Cracked Ice, Refrigeration

(Concluded from preceding page)

refrigeration together retained the vegetables within 95% of the original weight for periods ranging from six to 24 days; or, in other words, from two to seven times longer than any of the other treatments. This combination of factors extended the shelf life of these seven products more than any other combination tried in these tests.

Pre-packaged produce refrigerated with cracked ice and bulk produce under mechanical refrigeration, showed up to the next best advantage. The pre-packaged goods on the cracked ice display counter remained as top quality produce with less than 5% weight loss for periods from two to seven days.

Dehydration Cuts Weight

The bulk produce held under mechanical refrigeration showed immediate weight loss due to dehydration, although this was at a relatively slow rate. Over the period of the experiment, this method compared favorably with the pre-packaged cracked ice display.

Bulk vegetables in the cracked ice display were preserved in much superior condition than the bulk items held under room conditions—conditions similar to those of the conventional produce dry display counter.

Bulk produce was held on the cracked ice display cabinet in excellent condition for one to five days with no significant weight loss. After that, trimming and reconditioning accounted for the rapid decline.

Packaged, But That's All

Five of the seven vegetables included in this study, green beans, broccoli, cauliflower, endive, and lettuce, generally showed rapid deterioration when pre-packaged and held at room temperature. The loss of moisture and weight for the first day or so was slight, but the high humidity maintained within the packages, coupled with the room temperature provided an excellent medium for the development of molds and general deterioration.

Results of these tests indicate that pre-packaging of these five vegetables without adequate refrigeration is accompanied by some very real hazards.

Celery and green peppers retained their quality for about three days when packaged and held under room conditions. Even with these items, there can be no doubt that refrigeration is desirable.

In retail outlets using cracked ice displays, the produce usually is buried two or three layers deep in the ice. The top layer of produce is only partially surrounded by ice, permitting some exposure of the goods to view and to the atmosphere of the room. As the top layer is sold, the lower layers are then displayed on the surface.

For purposes of this experiment, however, the produce was kept only on the surface of the bed of ice, and the results show the losses experienced in the holding of the vegetables under these surface conditions only. The loss in partially exposed items may be somewhat greater than the loss in items completely buried in ice.

Prior Handling Affects Life

Not all sample lots reacted the same under identical conditions, suggesting that circumstances prior to delivery to the retail outlets had affected the shelf life of these vegetables. Growing methods, varietal differences, weather and climatic conditions, packing methods, containers, refrigeration, lapse of time from harvest to retail delivery, speed and care in handling at all levels of distribution—these and other factors doubtless affect the ultimate shelf life of the produce.

Retailer Needs Protection

The life of these perishable goods is under the influence not only of the retailer but also to a very large degree of the grower and other handlers prior to delivery to the retail store. Further study is needed to ascertain the importance of each of these influences in lengthening or shortening shelf life. Costs and returns accompanying various display methods likewise need to be studied.

Retailer Needs Protection

The retailer is not likely to be interested in a shelf life of more than five

days. His profits and reputation for quality offerings are contingent upon quick sales and frequent turnover rather than holding his offerings for long periods.

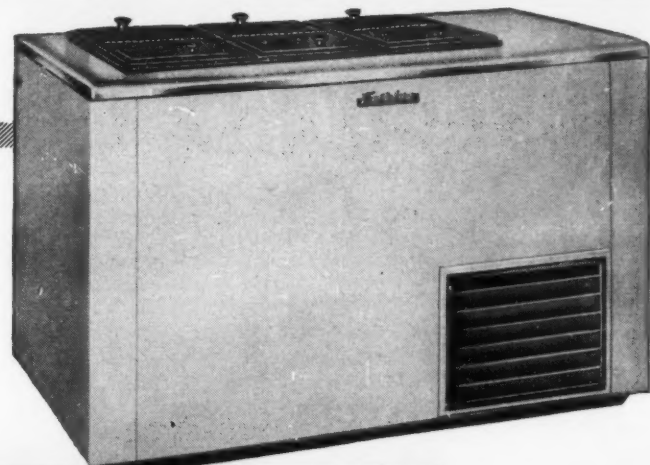
He wants to be able to maintain a wide and adequate selection of vegetables for his customers, yet if sales are slower than anticipated he wants to be able to hold the produce on sale for several days without suffering a substantial loss. That is to say, though he may have little interest in an exceptionally long shelf life for any item, he has much to gain from some prolongation of the life of every perishable he handles.

Longer Household Storage

Extension of the usable life of perishables is of concern also to housewives, especially to those who prefer to do their marketing infrequently. Improved refrigeration in homes has contributed to this trend. The homemaker is interested in purchasing vegetables that will remain in good condition in her household refrigerator for a considerable time.

Growers and wholesalers likewise have a direct and genuine interest in any practical means of prolonging the life of these commodities after they have been harvested and prepared for market. Producers and distributors are necessarily concerned with the needs of the retailer and the consumer. Measures providing greater protection and longer life of fresh vegetables at any point in the marketing process are advantageous in terms of orderly marketing and market stabilization.

Longer marketable life for perishable farm produce can scarcely fail to benefit the grower, the wholesaler, the retailer, and the consumer.



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IMMEDIATE DELIVERY!

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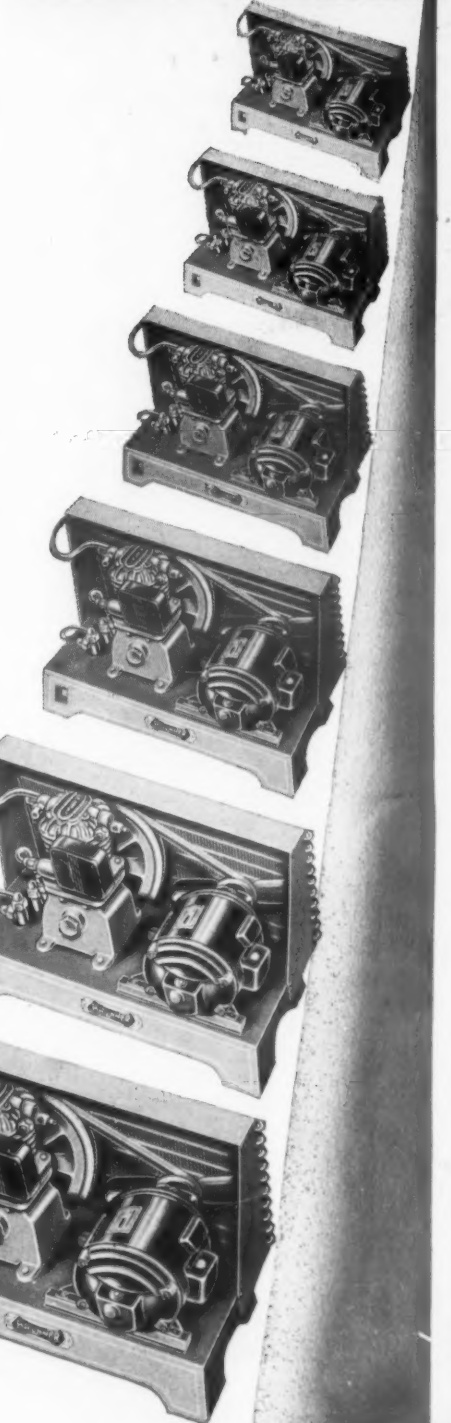
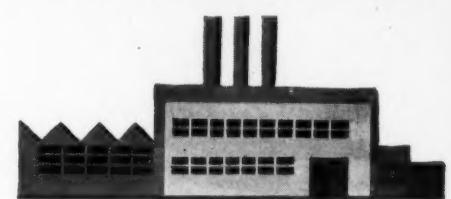
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STREAMLINED *Temprite*
WATER COOLERS

This is your opportunity... your golden opportunity to establish your company in the water cooler market. You can do it with the smart, streamlined Temprite!

Look closely at those smooth, flowing lines. You'll notice that it's different... without being radical. There's real eye-appeal here! There's real sales appeal in its sturdy, well-engineered cabinet, its all stainless steel top and its genuinely modern appearance!

There's dependable long life in its high capacity cooling system... built by Temprite and guaranteed by Temprite! Many valuable territories open. WRITE NOW!

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Originators of Instantaneous 80°-40° Liquid Cooling Devices
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SUSPENDED GAS

UNIT HEATERS

85—25—165 BTU capacity.
Delivery within 3 or 4 days.

This is a union manufactured Product.

Some exclusive territories are available.



We also manufacture a combination heating and cooling unit, gas fired furnace and the NAT "Self-Contained" Air conditioning unit.

THE NAT CORPORATION
2710 McGee Trafficway Kansas City 8, Mo.

Jahco Reports \$1,026,043 Net Income for 6 Months After Poor First Quarter

CLEVELAND — Byron C. Foy, chairman of the board of Jack & Heintz Precision Industries, Inc., has reported the company's net income for the first half of 1947 as \$1,026,043.

This figure, which includes \$524,808 primarily of a non-recurring nature, reduced the company's earned surplus deficit from \$3,143,880 to \$2,117,837. A loss of \$318,830 after giving effect to non-recurring income was reported for the first quarter of the year.

Mr. Foy said first-half sales totaled \$10,444,300. Of this total, \$3,716,581 was attained in the first quarter and \$6,727,719 in the second quarter. Sales for the second half of 1946 amounted to \$4,416,605.

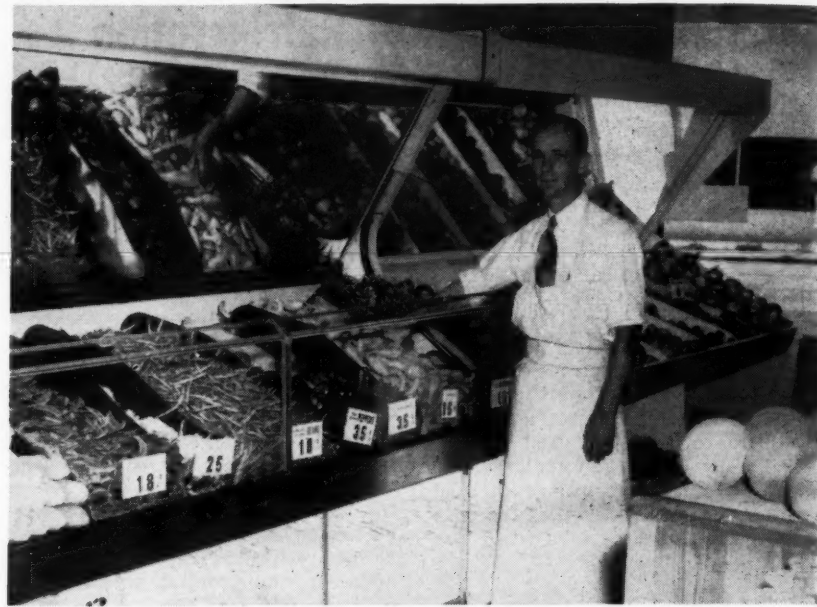
There are no comparative figures for the first half of 1946, since the concern did not begin operations until March of that year.

Jack & Heintz Precision Industries, Inc. is the peacetime successor to Jack & Heintz, Inc.

Unfilled orders as of Aug. 1 totaled \$43,000,000, according to Mr. Foy. He said personnel increased from 2,800 to 4,100 between Dec. 31 and Aug. 1.

Percentage of sales by products for the second quarter of 1947 was broken down as follows: Fractional horsepower electric motors, 50%; aircraft products and magnetos, 15%; ball bearings and open-type condensing units, 10%.

'Dry Rack' Blends In with Display Cases



W. E. Drew, who runs a food store in Augusta, Ga., stands before an open refrigerated case that has increased produce sales 200%. Note in the background how potatoes, carrots, beets, etc. are placed on a "dry rack" that blends in with the porcelain enamel finish of the display cases.



A second refrigerated case was installed to take care of dairy products.

Installation of Display Case Revamps Produce Dept., Cuts Loss from Shrinkage

AUGUSTA, Ga. — An average shrinkage loss of 8% plus a 200% increase in produce sales which is still climbing are the results of installation of a 100% refrigerated produce department in Drew's Food store at 1533 Walton Way here.

W. E. Drew, head of the store, "broke precedent" with many southern stores when he elected to eliminate former dry racks and wet-spray produce display methods in favor of refrigeration. Therefore, he spent \$2,750 for two refrigerated cases, and a "dry rack" for potatoes, carrots, beets, and fruit.

The produce case is divided into 12 narrow sections across, with a familiar tilt-type mirror behind. Each of the 12 sections is permanently classified into a particular type of produce, running from grapes to tomatoes.

One of the novel features of the newly-arranged produce department—which, incidentally, is only half the size of the former department, due

to the large amount of refrigerated storage space below—is the dry rack, constructed of plywood to exactly match the refrigerated case, and enameled with white porcelain enamel to give an unbroken expanse appearance.

"It was remarkable the way produce sales picked up with the installation of the refrigerated case," Mr. Drew said. "Before we installed it, we had to either mark down unsold produce at the end of the day, or run the risk of seeing it wilt and lose sales value before noon the following day—particularly in the warm summer weather. Now, however, with the refrigerated case circulating cold air over the produce, there is practically no spoilage whatsoever, and the crisp, fresh appearance maintained seems to encourage customers to buy more. We are selling produce now to many customers who formerly stopped by open-air country-side vegetable markets after buying their groceries in our store."



UNDER COVER...but Open to View in Thermopane-Equipped Cases

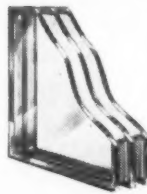
REG. U.S. PAT. OFF.

Frozen food dealers want their merchandise clearly visible under glass to attract more buyers. The colorful packages give homemakers meal-planning ideas. The look of cleanliness wins customer approval.

When refrigerated cases are equipped with Thermopane, frozen foods are visible—and safe. This complete transparent insulating unit... the first of its kind... helps prevent frosting on the glass and helps keep the temperature of cases at the right degree to protect frozen foods.

Thermopane units are factory-fabricated to exact specifications for new equipment or replacements... may be ordered for all types of refrigerated cases. Consult your nearby L-O-F Glass Distributor. Write Libbey-Owens-Ford Glass Company, 1297 Nicholas Building, Toledo 3, Ohio.

GET THESE 5 ADVANTAGES OF THERMOPANE



1. INSULATING AIR SPACE. The air inside a Thermopane unit is scientifically cleaned, dried and hermetically sealed at the factory. These air spaces give Thermopane its high insulating efficiency.

2. L-O-F BOMDERMETIC SEAL. This metal-to-glass seal bonds the panes of glass into one unit to guard against dirt and moisture entering the air space.

3. CLEARER VISION. The sealed-in dry air greatly reduces the possibility of condensation.

4. ONLY TWO SURFACES TO CLEAN. The glass surfaces inside a unit are specially washed at the factory. No extra cleaning is required.

5. FABRICATED TO SIZE. Each Thermopane unit is manufactured to your exact specifications—requires no cutting or trimming, and is easily installed like a single pane of glass.

ONLY LIBBEY-OWENS-FORD
MAKES Thermopane



LIBBEY-OWENS-FORD
a Great Name in **GLASS**

LATEST FALL AND WINTER

Catalog READY NOW

Reserved exclusively for the wholesale trade. Please include proper identification with your request.



CHASE refrigeration supply co. INC.
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Chicago's Oldest Refrigeration & Air Conditioning Supply House

Purchasing Agents Assn. Is Optimistic, AMA Cautious Over Outlook for Business

Reports See Good Final Quarter, High Output Level

NEW YORK CITY—Short and long-term views of what's ahead for business are outlined in recent reports by the National Association of Purchasing Agents and the American Management Association.

With the slight downward trend reported in June now changed, NAPA foresees extremely favorable conditions for the last quarter of 1947. AMA is predicting that a high level of production, intense price competition heightened by new materials and methods, and "potential instability reflecting international and national economic fretfulness" will mark the next 10 years of American industry.

Price Trend Fairly Stable

According to NAPA's business survey committee, there has been little change in the price trend except for coal, steel, and steel products. Competition, the committee said, is mounting by the month. It added that substitutes for high cost products are becoming more available.

The committee said industrial inventories are continuing downward at about the same rate as in previous months, with further reductions being made as the flow of materials increases. Many industries are said to have reported that raw materials inventories are in balance with high production requirements.

Watchful Buyer Policy

A policy of extreme caution is being advised by many buyers, the committee declared. It pointed out that the slight indication of long-term commitments evidenced in the June reports are not confirmed in August with 90% under three months, and many in "hand-to-mouth" to 60-day limitations.

AMA's forecast of things to come in the next decade appeared in its annual report for the fiscal year 1946-47. The association said Americans were likely to go through a short but "painful" readjustment from inflation.

"It may be a popular misconception that the advance of a continuously improved technology has

made easier the work of management," the report stated in emphasizing the role of executives, "but the machines for thinking and planning have not yet been invented.

"Personal efficiency is the beginning of everything and the more complex the machinery, the more specialized are the skills required to operate it. The most serious threat to the executive is his own managerial obsolescence."

Difficulty of communication between management and the rank and file was labeled the number one problem of personal administration. The training of foremen is essential to good industrial relations and long-term educational efforts to apprise workers of their "stake" in American enterprise is vital to production, according to the report.

Previous Wage-Hour Interpretations Rescinded as Govt. Re-Examines Act

WASHINGTON, D. C.—All previous interpretations issued by the administrator of the Wages and Hours provisions of the Fair Labor Standards Act have been rescinded and are now undergoing a thorough re-examination.

This has been made necessary by the passage of the Portal-to-Portal Act in Congress earlier this year, which makes many of these interpretations of the law legally binding in themselves, whereas previously they were subject to test in the courts.

Just exactly where refrigeration contractors stand with respect to this law cannot be determined at the present time, although it is expected that future statements by the administrator will clarify this situation.

A broad interpretation of what employees are covered by provisions of the Wage-Hour law has, however, been issued by Wm. R. McComb, the national administrator, as Part 776

of the act.

One of the points made in this interpretation is that coverage by the act is "primarily an individual matter as to the nature of the employment of the particular employee."

"Some employers in a given industry may not be subject to the act at all; other employers in the industry may be subject to the act in respect to some of their employees, and not others; still other employers in the industry may be subject to the act in respect to all their employees."

This interpretation may possibly be in line with one generally held previously in which employees of a contractor who worked on commercial refrigeration were covered by the act while those employees whose work was restricted to the servicing of household refrigerators could be exempted from coverage.

No specific ruling has been issued on this as yet, however.

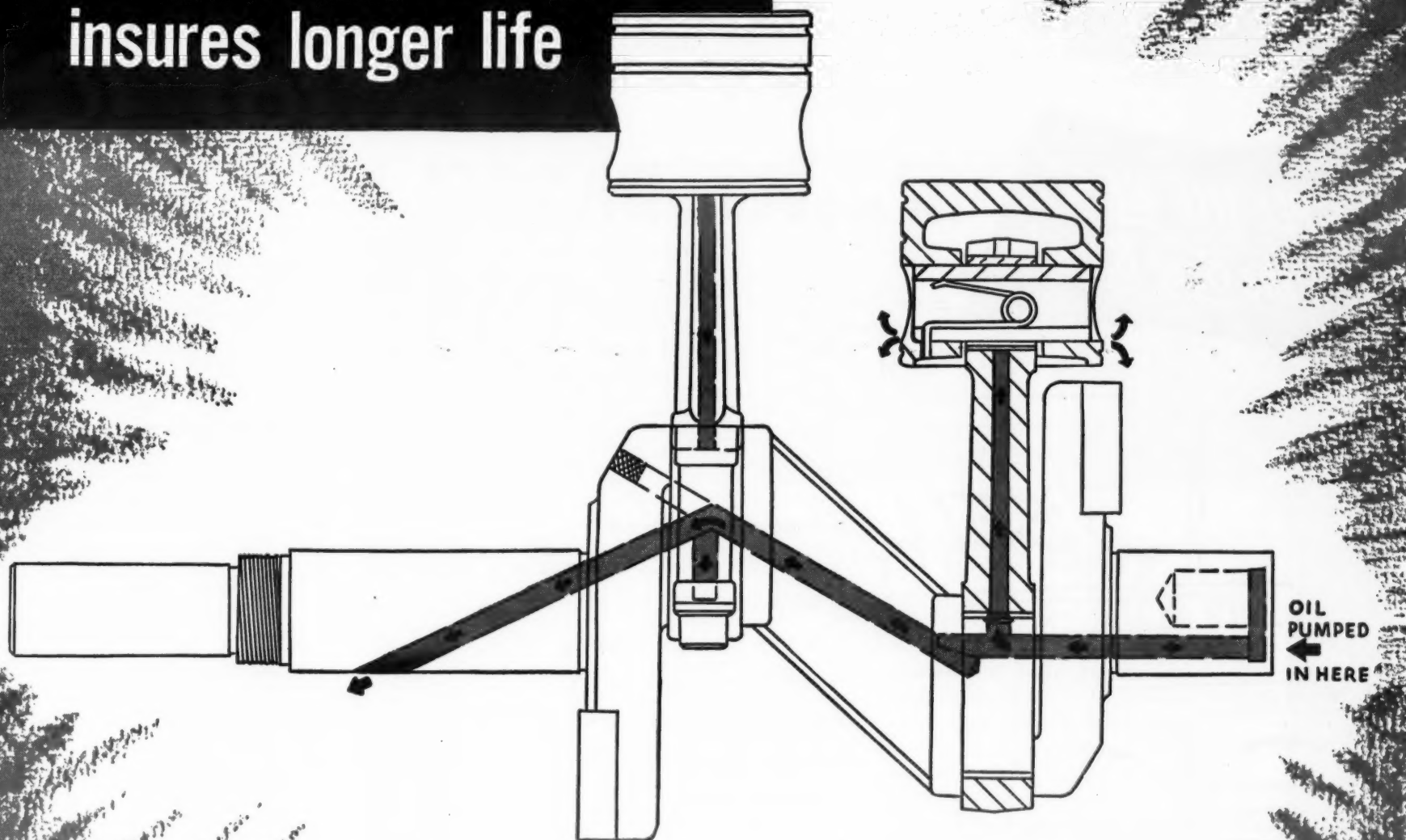
Canadian Co-op Installs Low-Temp Units To Aid Handling Frozen Fruits

MISSION, B. C., Canada—Installation of new low temperature units has been completed at the Pacific Co-operative Union here. The installation was handled by Ridgley & Ridler, refrigeration and electrical engineers, Abbotsford, B. C.

Under the new system berries are washed and cleaned at the Mission plant and prepared for storage by quick-freezing system after which they are shipped by barrel. The frozen berries are also held in storage until such time as they are required by the trade or it is convenient to process them at the co-operative jam plant.

All refrigeration machinery equipped in the plant was supplied by Canadian General Electric Co., two 40-hp. units being provided. K. Bamford, Canadian General Electric refrigeration engineer, worked with Ridgley & Ridler on the installation.

"Forced-Feed" lubrication insures longer life



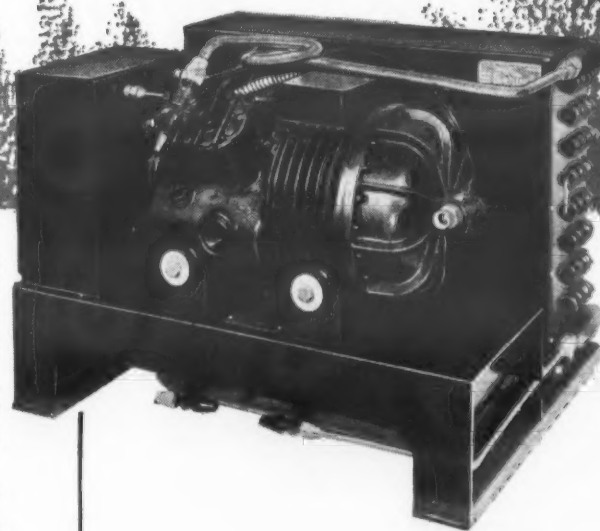
There's no question that moving parts last longer when they are constantly shielded by a film of oil.

That's why Servel long ago abandoned outmoded "splash lubrication" methods in favor of a unique "forced-feed" lubrication system. This system protects the vital elements of every Servel condensing unit, practically eliminating frictional wear and providing extra assurance that the power unit of your refrigeration system will give your customers extra years of trouble-free service.

Note the above diagram. See how oil is pumped to every bearing, how it is forced

through drilled connecting rods to wrist pins, pistons, and cylinder walls. Every moving part is thoroughly, constantly coated with a protecting film of oil. As a result, Servel's maintenance costs are lower, and your customers better satisfied. Your profits increase with each sale of Servel-powered equipment.

"Forced-feed" lubrication and many other advanced operating features of Servel's modern line of condensing units are fully described in our new folder, "Servel Supermetic." Write for it today. Address Servel Inc., Electric Refrigeration Division, Evansville 20, Indiana.



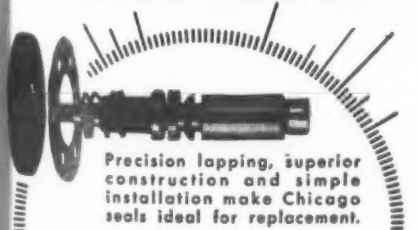
Servel's new "Supermetic" condensing units serve dealers and fixture manufacturers in every vital field...

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PLAYSAFE

USE CHICAGO SEALS and VALVE PLATES



Only Chicago valve plates have replaceable seats.



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Build up your new box sales now with Grunow Service Business!

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FOR 50 YEARS



REFRIGERATED COLD DRINK VENDING MACHINES

MR. MANUFACTURER:—

Top notch Promotional Sales executive thoroughly experienced and seasoned in all phases of the Vending Machine business seeks a connection with mfr. who has the facilities to manufacture refrigerated cabinets and who might be toying with the idea of entering the cold drink field. This market is huge, has not been scratched to date. Have available patents, the experience and know how to launch the type of machine this market will absorb in large way in the shortest possible time at the lowest possible cost.

Box 2488, Air Conditioning & Refrigeration News

GET GENUINE WAGNER Bearings



Wagner Bimetal sleeve bearings resist seizure, last indefinitely when properly lubricated. They come to you diamond bored to specified size; simply press in according to instructions, and reassemble motor. They are also available unbored for undersize shafts. Get them now from your Wagner distributor. Name on request.

MA7-37

Wagner Electric Corporation
ESTABLISHED 1891
6471 Plymouth Avenue, St. Louis 14, Mo., U. S. A.
ELECTRICAL AND AUTOMOTIVE PRODUCTS

William Bettner Named District Sales Manager For Whiting Corp.

HARVEY, Ill.—William C. Bettner, formerly with Schacht-Tuot, Rockford, Ill., has joined the Refrigeration Division of the Whiting Corp., as district sales manager for the Wisconsin - Minnesota - Iowa territory.



Mr. Bettner began his merchandising career in 1936 with Montgomery-Ward, Chicago, in the electrical appliance department. The following year he was promoted to sales manager of the department and given supervision over electrical appliance departments for all Montgomery-Ward stores. He joined the armed forces in 1943.

Brandon Heads Midwest Sales for Sargent-Roundy

RANDOLPH, Vt. — John G. Brandon, formerly manager of the refrigeration department of United Cooperatives, Inc. of Alliance, Ohio, has been named sales manager of the midwestern territory for the Sargent-Roundy Corp. here, the company has announced.

Sargent-Roundy manufactures the Arctic Jet milk cooler and other farm implements.

14 Million Gas Appliances Will Be Sold From '47 to '49, Gas Utilities Estimate

NEW YORK CITY—Gas utility companies estimate that their sales and that of appliance dealers will total nearly seven million gas ranges in the three-year period 1947 to 1949 inclusive, according to a study recently completed by the Bureau of Statistics of the American Gas Association.

This estimate was based upon replies received from utilities who serve 81% of the total residential customers of the gas industry and who were queried by questionnaires mailed in January, 1947.

Actual shipments by manufacturers for the first six months of 1947, as reported by the Gas Appliance Manufacturers Association, were 1,166,000 gas ranges.

The same study brought out that utilities expect that a total of 3,257,900 automatic gas water heaters, 599,100 manually-operated water heaters, 1,875,600 gas house heating units, and 1,464,000 gas refrigerators to be sold in their territories during the three-year period. The extremely conservative nature of the water heating estimate is shown by the fact that nearly one million automatic gas water heaters were shipped in the first six months of 1947 while the utilities estimates for the entire year were slightly above one million units.

In making the estimates, the utilities were asked to assume a sufficient supply of appliances to meet all demands except in the case of house heating units where they were asked

to limit the estimates to the number of heating customers which they would be able to serve.

Returns were tabulated regionally and by type of gas distributed by the utility, and the estimates compared with the residential customers of the reporting companies. This ratio was then applied to regional totals of residential customers for each type of gas to obtain sales estimates for the entire industry. To obtain an over-all estimate of sales, the utility appliance estimates were adjusted proportionately in the case of ranges and water heaters to include units designed for use with bottled gas.

Detailed figures are shown in the table below:

UTILITY ESTIMATES OF APPLIANCE SALES IN UNITS

(Range and Water-Heater sales are also shown adjusted to reflect Bottled Gas Units not reported)

	1947	1948	1949
Ranges			
Including Bottled Gas Units	2,195,800*	2,244,400	2,247,300
Excluding Bottled Gas Units	1,722,200	1,760,300	1,762,600
Water Heaters†			
Automatic			
Including Bottled Gas Units	1,051,000	1,102,000	1,104,900
Excluding Bottled Gas Units	946,000	992,000	994,500
Manual			
Including Bottled Gas Units	214,500	200,300	174,300
Excluding Bottled Gas Units	193,100	180,300	156,900
TOTAL Including Bottled Gas Units	1,265,500	1,302,300	1,279,200
TOTAL Excluding Bottled Gas Units	1,139,100	1,172,300	1,151,400
Central House Heating			
Floor Furnaces	220,900	241,600	242,100
Warm Air	201,100	217,200	232,300
Boiler	23,200	34,000	33,100
Conversion	97,900	147,500	168,000
Air Conditioners	3,400	5,600	7,700
TOTAL Excluding Bottled Gas Units	546,500	645,900	683,200
Refrigerators			
4 cubic feet	81,600	94,000	97,700
6 cubic feet	236,600	271,800	282,200
8 cubic feet	121,200	135,400	143,500
TOTAL Excluding Bottle Gas Units	439,400	501,200	523,400

*Gas Appliance Manufacturers Association reports 1,166,000 gas ranges shipped during the first six months of 1947.

†Water heater estimates appear low since Gas Appliance Manufacturers Association reports that shipments of automatic gas water heaters totaled 937,700 units during the first six months of 1947.

SELL THE BEST
...the Best Buys!

IN MODERN RANGES

SELL

- Automatic Features
- More Modern Conveniences
- Easier Cleaning
- Easier, Quicker Cooking
- Better Cooking
- Cooler Operation
- Lower Operating Costs
- Greater Value

FIBERGLAS* HELPS YOU, 2 ways!

Helps make better ranges and range performance!
Helps you sell your better ranges!

Fiberglas not only contributes substantially to those features women want in a range—such as quicker and better cooking, cooler operation, lower operating costs—but helps you establish and “nail down” these points in your selling. For your customers know Fiberglas. Know it as an efficient “lifetime” insulation that stays in place, never settling. Know this from satisfactory experience with Fiberglas-insulated ranges and other appliances. It's a smart dealer who remembers this and uses it in his selling.

HERE'S WHY 7 OUT OF 10† HAVE IT!

†7 OUT OF 10 RANGES BUILT TODAY, HAVE...

OWENS-CORNING
FIBERGLAS

THERMAL INSULATION

*Fiberglas is the trade mark (Reg. U. S. Pat. Off.) for a variety of products made of or with glass fibers by Owens-Corning Fiberglas Corporation.

Your NEW Filterpure CATALOG IS READY

Get Your Copy from Your Wholesaler—or Write Us

BETZ CORPORATION
HAMMOND • INDIANA

Jahco Condensing Unit Display Stand

Showroom stands for the display of the Jack & Heintz condensing units are now being distributed by the firm to its refrigeration parts wholesalers. Similar in design to the one at right, the display stands have a walnut finish, glassbrick top section, and subdued interior lighting. A convenient storage cabinet provides space for sales promotion literature describing the unit.



Survey Reveals Who Has Buying Power

MADISON, Wis. — When selling refrigerators, home freezers, and radios, the appliance dealer will do well to point his sales talk at the man of the house, though without ignoring the little woman, a recent survey made by the *Wage Earner* Forum indicated.

On other appliances, the dealer had better turn his attention to the woman, for hers is the deciding influence, the survey revealed.

As reported by the Wisconsin Power & Light Co. here, results of the poll on who makes the buying decision on appliances, including what brand will be purchased, are as follows:

	Husband	Wife	Both
Refrigerator	32.7	19.0	49.3
Home Freezer	39.7	14.8	45.5
Radio	44.7	11.3	44.0
Washing Machine	24.0	31.4	44.6
Range	23.7	32.1	44.2
Vacuum Cleaner	21.3	40.4	38.3
Electric Iron	11.3	64.9	23.8
Coffee Maker	12.3	66.1	21.6
Toaster	12.1	64.8	23.1

Los Angeles Dealer's 'Curb Service' Technique Consists of Selling Appliances In Street

LOS ANGELES—The Allen Furniture Co. here literally operates its major appliance department from the front curb.

Not wishing to be bothered with a system of "priorities" and "deposits," H. E. Allen, head of the store, decided to put his scarce appliances, such as refrigerators, ranges, and washing machines, right out on the curb whenever he got delivery on them.

August Heat Wave Cuts Into Dept. Store Sales

WASHINGTON, D. C.—The mid-August heat wave knocked department store sales for the week ending Aug. 16 down to 6% below the corresponding week last year, the Federal Reserve Board report indicates.

Sales during the week ending Aug. 9 had been only 2% below those of the same week last year.

For the Aug. 16 week, only one Federal Reserve district—San Francisco—reported an increase in sales. That increase amounted to only 1%.

Percentage decreases in other districts were as follows: Boston 18, New York 13, Philadelphia 6, Cleveland 7, Richmond 11, Atlanta 1, Chicago 6, St. Louis 5, Kansas City 1, and Dallas 5.

A later report from the Federal Reserve Bank of New York indicated that sales of New York City department stores, through heavy promotional sales especially on the back-to-school theme, had bounced back in the week ending Aug. 23 to a 3% gain over the corresponding week last year. In other areas, it was said, the declines were still continuing.

Wage-Price Rise Won't End, But Steel Shortage Will Soon, G-E Head Predicts

SAN FRANCISCO—This is what Charles E. Wilson, president of General Electric Co., thinks is in store for business:

Prices are not going to decline in the predictable future. In fact, they probably will go up. Unless food and housing costs stop soaring, prices are apt to continue upward.

Wages are not going to drop below present levels. Therefore, technological advances and more efficient mass production are the only ways by which prices might be lowered.

Current steel shortages, which are now curtailing production, should be pretty much a thing of the past by the middle of next year. Experiments with such steel substitutes as aluminum and laminates have not been very successful thus far because of excessive costs.

There is no sign of a depression, or even a recession. Those Washington economists who have been pre-

dicting a depression haven't been right since 1930.

Mr. Wilson offered this resume of things to come during a recent visit here. His San Francisco stop was one of several made on an inspection tour of company projects.

Citing the electrical business as typical of industry, the G-E chieftain explained why he doesn't believe prices will drop in the near future:

"On top of everything else, the recent increase in steel prices has jumped manufacturing costs. Our average prices are up about 35% since the last prewar year, 1940.

"Since then, labor has gone up 100% (and labor represents 45% of every dollar we spend); and materials are up 70%. Taxes are also up.

"The result is that though we \$537,000,000 worth of business in the first six months of this year, we made no more profit than in 1940, when we did less than \$200,000,000."

Calif. Group Supports Down Payment of 20%

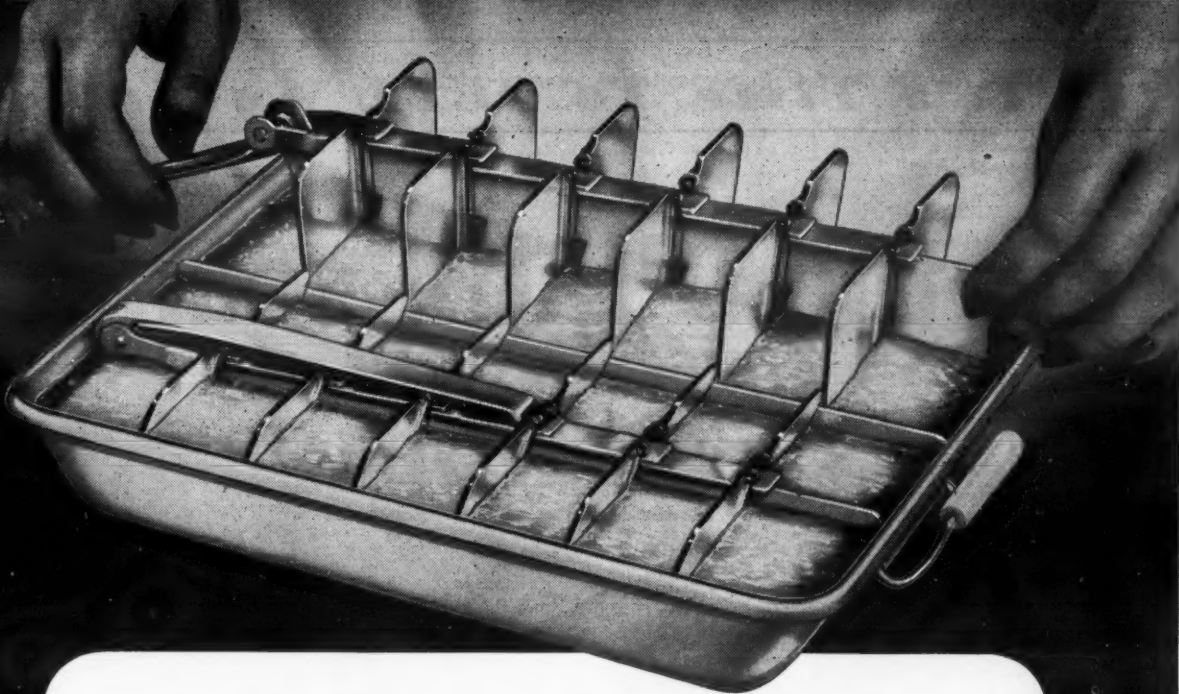
OAKLAND, Calif. — A minimum 20% down payment and no more than 24 months to pay on appliances has been proposed by the board of directors of the Appliance Dealers Trade Association of Alameda and Contra Costa Counties as the association's policy after expiration of federal credit controls after Nov. 1.

The board further recommended that no down payment and no monthly payment amount to less than \$5.00.

It proposed that the association's executive committee carry out this policy by advising appropriate organizations and agencies so that a common credit policy might be established in the San Francisco bay marketing area.

The board noted that the credit departments of the Bank of America and the General Electric Credit Corp. as well as the Retail Furniture Association of California also supported the minimum 20% down payment.

1 TRAY SERVES 3 WAYS!



Double Width-Triple Duty INLAND DESSERT TRAY

Inland Dessert Tray and Separator available as shown with grids having pastel-tinted plastic partitions; or aluminum partitions of various designs. Pan Lifter is optional.

Here's a single ice cube tray that gives extra-efficient, multi-purpose performance! The double width Inland Dessert Tray performs these three important ice tray functions.

1. FREEZES double the number of ice cubes because it contains double grids with the handy separator between. The ice cubes can be quickly released... full sized and dry.

2. MAKES an ideal freezer for all types of desserts and salads when the grids have been removed from the metal pan.

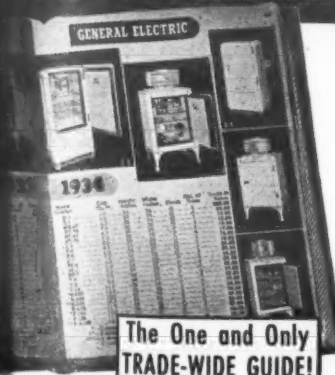
3. STORES frozen food, meat, fish, fowl, game, vegetables, ice cream and other perishables.

This all-around efficiency makes the Inland Dessert Tray a favorite with people everywhere. Find out more about this remarkable ice cube tray.

For full particulars and prices write to

INLAND MANUFACTURING DIVISION, General Motors Corp., Dayton, Ohio

The STANDARD Reference Manual on REFRIGERATORS and FREEZERS



NEW 1947-1948 EDITION NOW IN PRESS!

- More than 1150 photographs
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Arranged and indexed for quick reference. All appraisals have been revised to reflect current market factors. Use the Standard Manual to identify and evaluate every refrigerator and freezer accurately.

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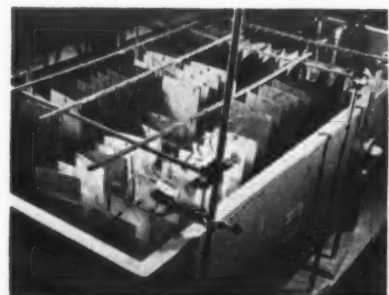
Put the DULUX seal to work



Point it out to identify America's leading kitchen appliance finish. It helps sell customers . . . keeps them sold

YOU ADD EXTRA PUNCH to your sales story when you point out the familiar DULUX Seal. It's a valuable sales aid . . . even hard-to-please prospects respect the name DULUX, and the seal really emphasizes the fact that they're looking at a finish that embodies color retention, mar resistance, and outstanding good looks for years of service. All rigidly pre-tested, too!

If your manufacturer supplies you DULUX-finished ware *without* the seal, ask him to include it hereafter. It not only helps boost today's sales, but "brings them back for more"! E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.



Pre-testing like this keeps DULUX out in front. Here, panels finished in DULUX are tested in an immersion bath for resistance to moisture and soap. One of scores of scientific tests that simulate . . . and surpass . . . actual kitchen wear.

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VOLUME 52, No. 2, SERIAL No. 964, SEPTEMBER 8, 1947

If the Black Market Shoe Fits You, Don't Wear It

BLACK MARKETS plague our business. They range from the occasional serviceman who charges \$70 for a repair job which involves \$5.00 worth of his time and a \$1.47 replacement part, to the rare home appliance dealer who syphons off scarce refrigerators, ranges, and television sets into the illegitimate merchandising channels controlled by racketeers, thugs, and gangsters.

In a previous editorial we mentioned briefly that a black market in short-supply home appliances was in existence. That "brief mention" evoked a flood of information from subscribers. We hadn't realized how widespread the refrigerator black market actually has become.

There's the dealer for "X" refrigerators in a prominent southern city, for example, who for 21 years has outsold all his competitors consistently. Like his brother dealers elsewhere, he's on an allocation basis. He receives maybe 50 or 60 refrigerators per month. His old customers are on a waiting list, and are pressing him for deliveries. All of a sudden, a character by the name of Joe Doakes rents a vacant second story walk-up on a side street and advertises:

"Come one, come all. Famous makes of refrigerators. Immediate delivery. Washing machines and ranges, too. Only one to a customer. Cash."

Startled, this longtime dealer investigates. He finds that the upstart is selling the "X" brand of refrigerators—in apparently unlimited numbers—at \$50 more per each than the recommended retail price. So the legitimate dealer is righteously indignant. He wires the branch manager, the zone representative, and the factory. "How come this Johnny-come-lately is getting refrigerators you aren't shipping me?" he cries.

At considerable expense, the factory puts sleuths on the trail. They find serial numbers filed off, etc. The trail is broken. Their conclusion is that a few dealers and distributors—greedy for a dishonest dollar—have somehow diverted part of their allotments to shady operators. These latter have trucked appliances out of metropolitan centers into smaller cities and towns, and resold them through "dummy" dealers to a panting market at extravagant prices. After they have milked one such market, they move onto another.

In the meantime, the shortage of parts and supplies keeps pace with the scarcity of complete units. And some jobbers, dealers, and servicemen are not above taking advantage of their "driver's seat position."

Take refrigerants, for example. The resale profit on twelve 50-pound cylinders of refrigerant is greater than the take on four 145-pound cylinders. So it's a temptation to shrug one's shoulders and say: "This stuff is awfully scarce. All I can give you is 50 pounds this week." (The small containers can be loaded from the bigger ones at quite an extra mark-up.)

Or, the agent for "this stuff" will throw up his hands and protest that he's all out of it when approached by a buyer. Then he turns over the name of this buyer to his cousin or brother-in-law. The latter offers the "stuff" at a 100% premium.

Stories of this nature could be recounted endlessly. The point is: There are crooks in all types of human endeavor. And there's a touch of larceny in the souls of most human beings. But taking advantage of a temporary sellers' market is a poor way to build a business. Customers have long memories. And there'll come a day, Mr. Black Market Feeder, when you'll wish you had invested in "good will" instead of latching onto a quick dollar.

If the shoe fits, don't wear it any longer!



DID BUDGET ARTICLE OMIT ESSENTIAL ITEM?

Joseph B. Klainer & Co.
Public Accountants and
Industrial Engineers
1819 Broadway
New York City
Aug. 27, 1947

Editor:

One of our clients has called to my attention the article by P. B. Reed in the issue of Aug. 11, 1947, dealing with the subject of budgeting for refrigeration service companies.

I have read this article with a great deal of interest and have studied the illustrative budgets shown by Tables I and 2, in relation to the experience of several of our clients who are engaged in the refrigeration service business.

I need not say that I am in complete accord with Mr. Reed's fundamental thoughts with respect to the vital importance of setting up a budget as a cornerstone for intelligent business guidance. We have in our own practice consistently educated our clients in the process of projecting future operations by utilizing budgeting procedures.

However, in view of our experience with the client's mental reactions to budgetary control, I feel that it is important to point out two basic omissions in Table 2—"Budget of Operating Expenses or Overhead." These omissions are:

(1) The necessary bookkeeping help to maintain an adequate set of books of account.

(2) A provision for the necessary professional accounting services to guide and audit the work of the bookkeeping personnel; to prepare the necessary financial and operating statements upon which the budget for future operations must be predicated; and to examine the actual results in relation to the projected operations as set up by the budget.

On the basis of the budgeted annual sales of better than a quarter of a million dollars and the volume of operations requiring a managerial overhead of a full time General Manager and Service Manager with a shop foreman and four dispatchers, there should be provided in our opinion an annual cost of \$4,000 for bookkeeping and \$2,500 for professional accounting services.

Whether or not these additional expenditures will more than pay for themselves through helping the management to operate more efficiently is a moot question. We operate on the premise that unless they do, they are not justified.

In any event, however, we feel certain from our many years of experience that, unless the operator of a business is first educated to the importance of proper internal bookkeeping control and competent outside professional accounting supervision, he will be little inclined, indeed, to appreciate or even understand the value of budgeting his business operations.

We would therefore suggest, that the further development of this subject might well stress the importance of having a business properly controlled accounting-wise as a first step in the projecting of the future operations of a business through the budget procedures.

It may also be well to point out the importance of utilizing the experience and judgment of the competent professional accountant in the construction of the budget and in its utilization as an effective management tool.

We will appreciate your forwarding this letter to P. B. Reed, and we hope that it may be helpful to him in his efforts to get the refrigeration service business budget conscious.

Very truly yours,
JOSEPH B. KLAINER

'HEMISPHERIC SOLIDARITY' VITAL TO U.S. TRADE

Jordan Refrigerator Co., Inc.
Philadelphia, Pa.

Editor:

I have just read your very interesting article entitled "Hemispheric Solidarity," which appears on page 1 of the Aug. 25 issue of AIR CONDITIONING & REFRIGERATION NEWS.

I was particularly interested in Brazil as a great export market, and would like to point out that we are making shipments right along to Brazil, where much of our equipment has been seen.

We are making shipments to Porto Alegre, Sao Paulo, Rio de Janeiro, and Fortaleza. We consider this a vital activity in our organization.

MAURICE ZATKO,
Export Manager

QUESTIONS STATEMENTS ON FREEZER DIMENSIONS

Monsanto Chemical Co.
Merrimac Division
Everett Station
Boston, Mass.

Editor:

I should like to take exception to the statement of Professor Nicholas in his article in the Aug. 18 edition that on small home freezers insulation thickness is not so important.

The consideration of "Santocel" insulation by almost every freezer manufacturer in the country, particularly for the smaller sized units, seems to belie his statement. Many of the people who purchase small units do so, not because they require less storage capacity, but because of the limited amount of kitchen space available for a freezer.

I, for one, certainly feel that doubling the volume of a freezer within the same outside dimensions should be of vital importance to anyone contemplating the purchase or the manufacture of a home freezer.

Very truly yours,
VINCENT DIMAIO,
Special Products Engineer

TEXAS DISTRIBUTOR SEEKS RIGHT CONDITIONER SETUP

Marvin A. Smith Co.
6612-4 Snider Plaza
Dallas, Tex.

Aug. 29, 1947

Editor:

Perhaps with your broad contact with the manufacturers of cooling equipment, you might know of a manufacturer that is seeking live-wire representation in the Dallas trade territory.

We have 15 top flight consumer salesmen in our retail organization, and operate a wholesale division, and service dealers within a hundred mile radius of Dallas effectively.

We discount our bills and during the season which is now approaching an end, we sold over 700 attic fans for the Acme Equipment Co., Muskogee, Okla., which produces a quality product. This Acme fan is sold at the highest levels in the attic fan industry.

We feel that we can do an outstanding selling job for some washed air manufacturer who makes a neat appearing unit in the 3500 c.f.m. type.

We are jobbers on Acme attic and exhaust fans, and would welcome the opportunity to discuss with a washed air manufacturer our plans for 1948.

If you can put us in touch, or give us the names of such firms, we would

greatly appreciate it. We are consistent readers of your magazine, and enjoy it immensely.

MARVIN A. SMITH

'ONE FOOT' HAS PLENTY OF MEAT, SAYS SIMPSON

National Electrical Retailers
Association
1304 Eye St., N. W.
Washington 5, D. C.

Editor:

I have been reading your very interesting book entitled, "One Foot in the Door." There was so much to be gained in reading this book that I am afraid it is going to take me several weeks to do a thorough job, such as I want to do. I have gotten a great deal of good out of the first approximately 100 pages that I have read today.

I thought you would be interested in the brief review we did of your book in the Aug. 25 issue of Electrical Retailers News. Miss Acord, our public relations manager, has read your book and has certainly nothing but the highest of praise for it.

C. C. SIMPSON,
Managing Director

EXPLAINS STATISTICS ON HOUSEHOLD UNITS

National Electrical Manufacturers
Association
155 E. 44th St.
New York City

Editor:

With respect to statistics on sales of household electric refrigerators, we would like to point out that all companies participating in the regular monthly activity on sales by sizes are also represented in the summary of sales by states.

The only distinction is that the states figures represent sales by distributors and dealers, whereas the monthly report of sales by sizes represents sales by manufacturers.

A. J. NESTI,
Chief Statistician

For Silent Operation
and Longer Wear
on REFRIGERATION and
AIR CONDITIONING EQUIPMENT
Use

MANHATTAN V-BELTS WHIPCORD FHP

They grip without slip.
They flex without overheating.
They are uniformly constructed for longer life.
They deliver the power that makes your equipment DEPENDABLE.

RAYBESTOS-MANHATTAN, Inc.
"Keep Ahead with Manhattan"

MANHATTAN RUBBER DIVISION, PASSAIC, N.J.

ATTENTION MANUFACTURERS! FRANCHISES WANTED

IF YOU want top representation through established refrigeration, air conditioning and electrical wholesalers in Missouri, Kansas, Colorado, Southern Illinois and Southern Iowa, sales organization with established contacts and industry following can produce top results.

Box No. 2485, Air Conditioning
& Refrigeration News

AVAILABLE AT COST! NEW, CARRIER REFRIGERATION UNITS

Built to U. S. Navy specifications for hot tropical conditions.

Wide Range of Utility:

- Frozen Food Storage
- Sharp Freezing
- Fresh Meat Storage
- Ice Storage
- Air Conditioning, etc.

All units in original packing

Refrigeration Sales & Service
57 Spring Street, Rochester 8, N. Y.

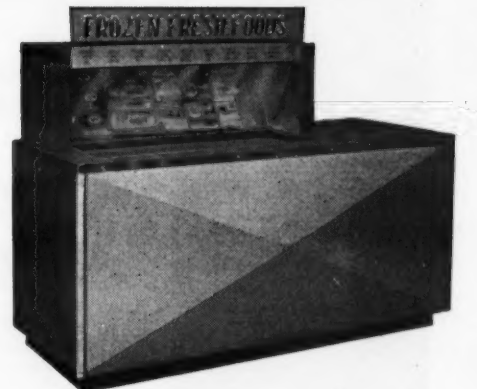
ROGERS QUALITY LINE of Refrigeration

Frozen Foods Salesman

Every store selling Frozen Foods, from small grocery store to giant superstore, wants one—needs one!

Open top display shows the foods, makes self-service easy, rapid, satisfactory.

Heavy duty compressor.



Walk-in Cooler

Dealers can invite their customers to "walk in and get one" because they are ready for immediate delivery.

Shiny and attractive in appearance and easy to keep that way. All metal clad inside and out, built for permanence and service.



Dry Beverage Cooler

Best looking on the market. Rapid cooling, high capacity. Lids slide away or lift out. All compartments can be open at the same time.



Rogers refrigeration units are finished in Stainless Steel or polished Aluminum.

DEALERS WANTED

Write, wire or phone today for information on franchise.

Immediate Delivery!

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ROGERS Industries

BOX 272-AC, DEMOPOLIS, ALA.

NOW! ORDER MONDAY - GET FRIDAY

HANDEES (WHO HAVE SOLD OVER 15,000 TRUCKS BY MAIL) OFFER A NEW

Dual Wheel Refrigerator & Appliance TRUCK

Also for Furniture,
Crates, Boxes, Cartons

\$31⁹⁵

MODEL 88R

THIS new dual wheel truck rolls as easy as a baby buggy. The 4 big resilient rubber tires contact floor at 4 points, giving truck a firm base, making heavy objects easier to load, easier to roll, easier to handle. No strain on arms of operator because (due to the 4 large wheels) there is no tendency to side-pull, side-tip, nor will it "slew" around when some small obstacle is run into on the floor.

Try at our risk. You will find HANDEES dual wheel truck will greatly reduce the job of handling heavy appliances and bags, and cases, cartons, as well. Over 15,000 HANDEES trucks have been sold by mail. Less than a dozen of them have come back on our simple guarantee, "Send back any HANDEES truck collect if it doesn't fit your needs." Order by mail with full confidence of satisfaction or your money back.

Same Truck with Single
Pair 8 x 2 Wheels is
Model 82R, Priced.....

\$26⁹⁵

HANDEES CO. Dept. AC9
Bloomington, Illinois



Specifications:
Model 88R
1" O.D. tubular
steel frame.
Ht. 54"; nose
width 24";
13' web strap;
curved cross
pieces.
Wheels:
four 8 x 2
unusually
resilient
durable rubber.
Cap. 1000 lbs.

IT'S EASY WITH THE Easload

APPLIANCE TRUCK

ELEVEN built-in features of the Easload Appliance Truck guarantee easy rolling—long life—appliance protection.

For instance, the entire weight of the load rests on the wheels, which slide back to carry the load at the touch of the foot pedal. Curved tubular handles make it easy to slide the load up and down stairs, into and out of the delivery truck. The water heater, range, refrigerator or other appliance is cinched onto the truck by a double ratchet. Rubber covered cross bars, uprights and wheel nuts give protection.

Write today for literature showing all 11 Easload advantages — features which make it so popular among appliance dealers the country over.

Priced \$48.50 f.o.b. Los Angeles
Weight 64 lbs. ... Capacity 800 lbs.

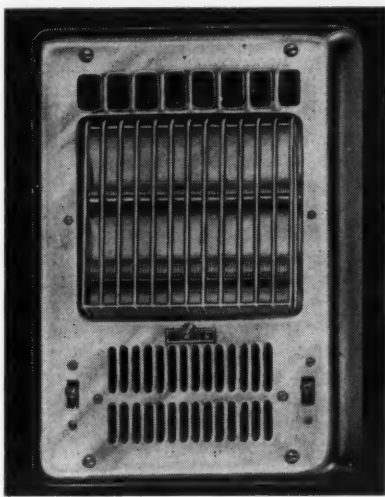


COLSON EQUIPMENT & SUPPLY CO.

1317 WILLOW STREET

LOS ANGELES 13, CALIFORNIA

What's New



'Fan-Glo Heetaire' Recessed Wall Heaters Introduced

DUFFALO, N. Y.—A new series of built-in recessed wall heaters, whose infra-red heat is fan blown into the room, has been introduced by La Salle Lighting Products, Inc. and Markel Electric Products, Inc., here.

Called the Fan-Glo Heetaire, the unit features two Neo-Glo heating elements independently controlled by two switches. The tubes of the heating elements, the manufacturer said, are of refractory material which

attain the same heat intensity as the wire itself.

Thus, they added, the entire element and not just the wire, becomes a bar of solid, uniform, glowing heat.

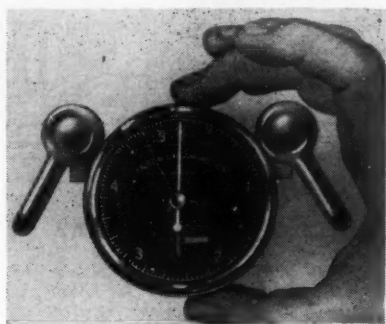
The two switches, they declared, enable the user to shut off one element and fan at his convenience.

Finished in highly polished Nuchrome, the unit's front measures 12 in. wide and 18 in. high. The box measures 10½ in. wide, 15 in. high, and 3 in. deep.

The motor is of the induction type, 50-60 cycle, a.c. Shipping weight of the unit is 14 lbs. It is guaranteed for one year.

This new 230 series includes six models whose wattage and voltage are as follows:

Model	Wattage	Voltage
L-232K	1250	115
L-232HK	1250	230
L-233H	1500	115
L-233HK	1500	230
L-235K	2000	115
L-235HK	2000	230



Dillon Turns Out Small, Large-Size Dynamometers

CHICAGO — For measuring tension or force in a limited space, W. C. Dillon & Co. Inc. here has developed a dynamometer which it claims is the smallest of its kind.

The instrument, which is made in 100-lb., 250-lb., and 500-lb. capacities, measures only 3 in. in diameter and weighs 1 lb., the company said. It has an unbreakable lucite crystal and red maximum hand.

The company also makes a larger model AN dynamometer for measuring forces up to 20,000 lbs. The larger instrument is identical with the smaller model in every detail but size, the manufacturer said.

Built-In Range Has Separate Cooking, Oven Units

LOS ANGELES — A built-in electric range, made in separate cooking and oven units in order to fit any desired kitchen arrangement, is now being produced by the Thermador Electrical Mfg. Co. here.

Basic units of the novel Thermador Built-in range are the stainless steel cooking top and primary oven. To these, a secondary oven and an electric griddle can be added.

The cooking top consists of three heating units and a 5 qt. deep well cooker. It measures 17½ in. wide by 45 in. long with a ¾ in. rise for the switch panel.

The heating units and deep well cooker are arranged in a semi-circle around the switch panel. The panel is slightly elevated to prevent any residue from draining into switch contacts and is set at an angle for improved vision, the company stated.

Either five heat control or infinite control switches are provided, it added. One of the surface units uses 2,100 watts and the other two use 1,250 watts. The deep well cooker takes 800 watts.

The cooking top is installed at the factory into a rough-in box 10½ in. deep. The rough-in box also contains two sliding drip trays.

The cooking top and rough-in box together are installed into a storage cabinet at any convenient height. A conduit with three wires is run into the cabinet, the unit is lowered into the well of the box, the wires are connected to the unit, the cooking top is secured by four screws, and the range is ready for operation.

The primary oven, which can fit into any cabinet opening 16 in. wide, 15½ in. high, and 24 in. deep, features separate 2,300 watt broiling and

baking units, an automatic timer clock to control cooking time, and a minute minder which rings a bell when the designated cooking time is completed.

It is also equipped with an automatic oven temperature control of the hydraulic type, master pilot light to tell when oven is on or off, automatic interior light, a selector switch, non-tilt racks, and a counter balanced door.

The oven interior measures 16 in. wide, 15½ in. high, and 19½ in. deep when oven door is closed. Front and trim of the unit are 22½ in. wide and 26½ in. high. Gross weight of the oven is 112 lbs. A single conduit provides the electrical connection.

Secondary oven units are identical with the primary oven excepting the timer clock and minute minder.

To complete the kitchen, Thermador will also have available a built-in griddle 21½ in. long, and 17½ in. wide. The griddle will be equipped with a five heat control and will need only a single conduit connection.



For America's DeLuxe Refrigerator Market

COOLERATOR* Flavor Saver

8½ CU. FT. SIZE • RETAIL PRICE \$269.50

WITH 40-LB. BUILT-IN FROZEN FOOD LOCKER F.O.B. DULUTH



Embodying ALL These Refrigerator Advancements You'd Expect in the Most Expensive Postwar Model!

1. 40-LB. BUILT-IN FROZEN FOOD LOCKER—Actually space for 40 lbs. of frozen foods without removing or disturbing any of your ice cube trays.
2. FLAVOR SAVER PRINCIPLE—a new conception of home refrigeration, providing the correct temperature and humidity to keep all types of food fresh and tasty. Powered by Coolerator's "Econ-O-Mizer" compact freezing unit.
3. PLENTY OF MEAT STORAGE SPACE—both in the freezing compartment and in the special chilling shelf directly underneath.
4. MORE EASILY-REMOVED ICE CUBES—Five big quick-release ice trays. Freezes 70 cubes (10 lbs. of ice). Ejects two or 14 cubes as desired.
5. 2 BIG FRESH-VEGETABLE CRISP-O-LATORS—for all fresh fruits and vegetables and foods requiring higher humidity (50 degrees or more).
6. INTERCHANGEABLE SLIDING STAINLESS-STEEL SHELVES—Genuine stainless steel shelves (absolutely rust-proof). Change to any arrangement desired.
7. MORE SPACE FOR TALL BOTTLES AND JUGS—Another advantage of the flexible shelf arrangement. Ideal for large melons, gallon bottles, etc.

*T.M. Reg. U. S. Pat. Off.



The Coolerator Company, Dept. AC-77
Duluth 1, Minnesota

MANUFACTURERS OF ELECTRIC AND CONVERTIBLE ICE-TO-ELECTRIC REFRIGERATORS, HOME AND FARM FREEZERS

TRADED-IN

REFRIGERATORS...from 2 to 18 cu. ft.

FRIGIDAIRE • GENERAL ELECTRIC
HOTPOINT • KELVINATOR • NORGE • PHILCO
WESTINGHOUSE and OTHER FAMOUS BRANDS

WRITE FOR LATEST PRICE LIST

ATTRACTIVELY PRICED for PROFITABLE RESALE

METRO REFRIGERATOR CO. 44-3rd Ave., New York 3, N. Y.
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What's New (Cont.)



Thermostat Controls Cory Automatic Coffee Brewer

CHICAGO—A new deluxe domestic automatic coffee brewer, claimed to be the only completely automatic one yet developed, is being introduced by the Cory Corp. here.

Labeled the Model DEA, the unit employs a new type self contained electric chrome serving decanter which embodies the heating element, a glass upper bowl, and the patented Cory glass filter rod, the company said. Included as standard equipment are a patented plastic safety stand for the upper bowl and a coffee measuring cup.

What makes the unit completely automatic is a thermostat which controls high and low heat. After the water is brought to correct brewing temperature and forced into the upper bowl, the thermostat allows the water to agitate for over a minute before it cuts off the high heat and turns on the low heat, the company explained.

The low heat permits the coffee to flow back to the serving decanter and then keeps the coffee at correct serving temperature, it added.

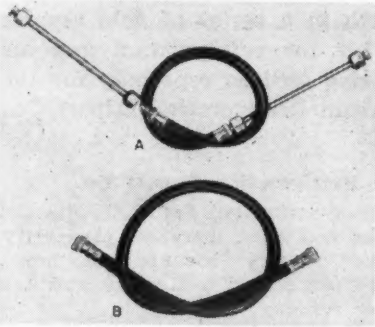
This thermostat is the only moving part in the whole mechanism, the manufacturer said.

To prevent the housewife from

harming the heating element by dunking it in the dishpan, Cory stated that it had permanently attached the electrical cord to the decanter.

High heat is an enclosed, heavy duty, armored type unit while the low heat is a mica-insulated, ribbon-type element, the company said. The high heat coil is brazed into the bottom of the decanter to lessen heat loss.

The new model which has a six to eight cup capacity, is designed for use with a.c. current only, Cory declared.



Charging Hoses Designed To Withstand Heavy Duty

CHICAGO, Ill.—Fine Products Co. here is manufacturing charging hoses that are claimed to withstand temperatures to -40° F. and pressures in excess of 1,000 p.s.i.

Rayon enforced, the heavy duty neoprene hose is exceptionally flexible and sturdy; it will permit small radius bends without breaking, the company says.

It is manufactured in two types. Type A is a standard 1/4 in. hose with an over-all length of 36 in. including the 6 in. flared copper tube on each end.

Type B comes equipped with a "Rapid" quick-coupler type joint on each end, with replaceable neoprene gaskets, the manufacturer explains. A two piece coupler of integral construction is said to assure a leak-proof joint without wrench tightening.

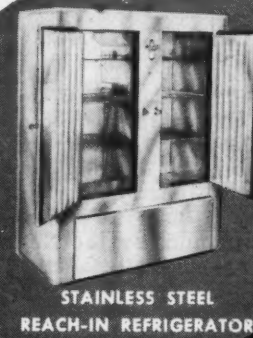


G-E Footwear Maintains 105° F. For Cold Feet

BRIDGEPORT, Conn.—People who suffer from cold feet in bed can look for relief now that a new electric footwarmer retailing at \$7.55, plus tax, has been announced by D. C. Spooner, manager of the General Electric Co.'s automatic blanket and sunlamp division.

Placed between the top sheet and the first blanket, the footwarmer is designed to bring an even warmth of 105° F. to the foot of the bed throughout the night, according to Mr. Spooner.

The 36 by 17-in. cover is of sanforized cotton with a rough finish so that the footwarmer will stay in place at the foot of the bed. The waterproof, insulated wiring system is approved by Underwriters' Laboratories.



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CROWN manufactures a complete line of the finest commercial refrigeration equipment. Our superior craftsmanship assures perfect performance.

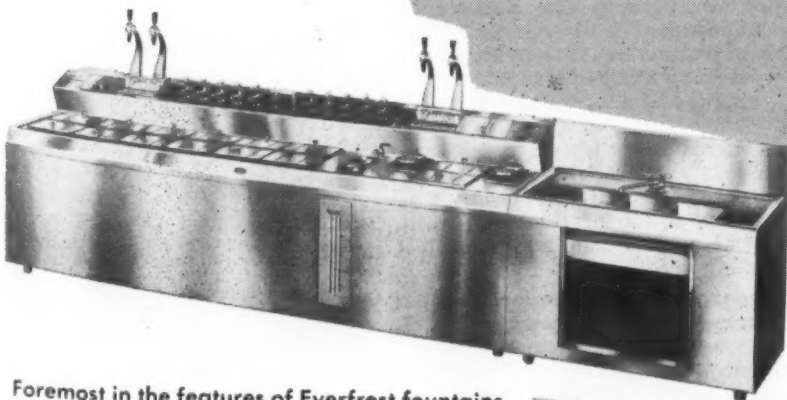
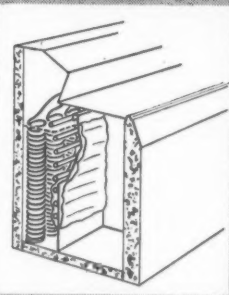
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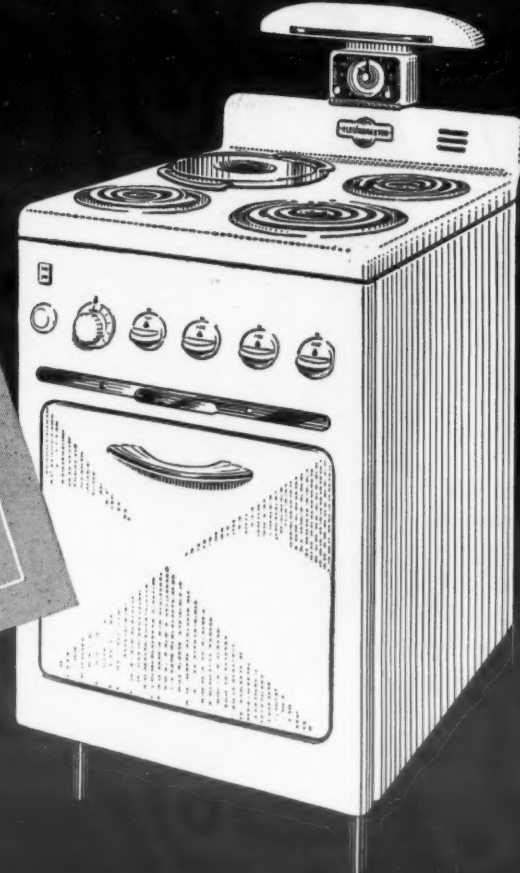


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The Great New **Electromaster** SPACE SAVER Electric Range with Automatic Oven Control



OFFERING DE LUXE FEATURES—for the FIRST TIME in an electric range designed for the small kitchen

Automatic Oven-Timer Clock—What a sales feature this is! Now you can sell big range cooking capacity—plus automatic oven cooking control in the famous Space Saver. It's exclusively Electromaster!

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Vita-Miser Deep Well Cooker—The Deep Well Cooker has been standard equipment on the Space Saver but has never been offered on any other electric range of this type. It's exclusively Electromaster!

Plus Electromaster Quality Craftsmanship—Sell Electromaster electric ranges and you sell the finest in design and modern cooking features. Electromaster ranges sell faster because they are built by electric range specialists.

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Chile Bans Imports of Refrigerators, Radios

WASHINGTON, D. C.—Chile has joined the expanding list of countries which now prohibit importation of refrigerators and other appliances. The Chilean Ministry of Economy and Commerce has forbidden the granting of permits by the National Foreign Trade Council for the importation of 79 groups of items considered as luxuries or non-essential by virtue of their manufacture in Chile, the Office of International Trade, Department of Commerce, reports. Included are refrigerators, radios, stoves, and electric heaters. Similar bans were put into effect in Mexico, Argentina, and India, among others.

No Dollars for Refrigerators

WASHINGTON, D. C.—A report in the Department of Commerce journal Foreign Commerce Weekly said the importation of refrigeration equipment into Denmark in the near future is considered unlikely.

"The shortage of dollar exchange limits imports from the United States to requirements essential to Danish industry," the report explained.

Indian Radio Show Postponed

WASHINGTON, D. C.—The Office of International Trade, Department of Commerce, reports that the All-India Radio Merchants Association has postponed a conference and exhibition of radio and allied goods of both foreign and national makes from August to the last week in December due to political developments.



Report from Venezuela:

Frozen Food Equipment Demand on Rise In This Land of High Prices, Big Profits

Editor's Note: This is the fourth in a series of field reports analyzing the Latin-American market for refrigeration and air conditioning equipment. They are being written especially for the News by Philip H. Bertritt, of American Refrigeration Export Co., New York City.

By Philip H. Bertritt, American Refrigeration Export Co.

It looks as though Venezuela, which has been an excellent market for commercial refrigeration equipment, will continue to be one for quite some time, with the demand probably more inclined to increase than decline in the near future. Venezuela is a prosperous country with plenty of money and no shortage of dollars. This, of course, is due mainly to the oil resources of the country. Business is good and prospects toward its continuance are excellent.

The cities of Maracaibo and Caracas are in the midst of a terrific building boom and are growing extensively. A new oil refinery, said to be the largest in the world, is under

construction not far from Maracaibo and will bring increased prosperity to the country because oil now is shipped mainly to Curacao and Aruba for refining.

However, it seems that in the early months of this year, manufacturers of refrigeration equipment shipped large quantities to Venezuela and the opinion was expressed by a number of distributors that many new firms who imported this equipment will be forced to start liquidating their stocks soon with the result that the old established concerns are going easy on purchases for the time being.

Another distributor—who, until now, had handled a line of commercial refrigerators, stated that he was discontinuing that line because competition had become too keen as a result of the large stocks now in Venezuela—imported during recent months. He was expecting price cutting and, therefore, wanted to keep his capital liquid.

Many others have the opinion that serious price cutting is doubtful, as Venezuela has for many years been a country of high prices and big profits and it is felt that this condition will be corrected without serious damage. Furthermore, not only are importers holding off purchasing because of an expected decline in prices, but also because business conditions are a little uncertain as a result of the unsettled political situation.

Credit Restriction Temporary

It was also learned that some of the banks have begun to restrict the granting of credit to their clients, but no one expects this to last long—only until this so-called excess has been absorbed and until the political situation becomes clarified. It is quite likely that this corrective period will once again be followed by normal or increased business.

Caracas, the capital and largest city in the country, is a 50-cycle city and importers are reluctant to import refrigeration equipment with 60-cycle motors, even with the present shortage of 50-cycle motors. The reason is that usually the current is as low as 42 cycles, which is very hard on 50-cycle motors and even more so on those of the 60-cycle type.

Perhaps largely because of the influence of the American oil companies and perhaps also because of the abundance of dollars resulting from a production of oil, Venezuela is a country fully appreciating the advantages and need for refrigeration and air conditioning. Therefore, such items as display cases and reach-in refrigerators are very popular and extensively used. The preference is for porcelain or white enameled finishes but stainless steel is coming into vogue.

Venezuela is an excellent market for frozen food as practically all food is imported. As a result, frozen food display cases as well as farm and home freezers are in considerable use and the demand for these cabinets is increasing.

Ice cream cabinets are also in great demand, as ice cream is a popular item in Venezuela. However, the demand is mainly for the smaller size units, such as 10 or 20-gallon cabinets, with the former in greater demand.

Air conditioning is used to a greater extent than in many Latin American countries, again possibly due to the large influence of the oil companies.

Maracaibo, located on the seacoast,

is a city that needs air conditioning very badly and uses it to a considerable extent. But Caracas is situated at an altitude of about 3,000 feet and has a delightful climate. Neither the days nor the evenings are uncomfortable so that air conditioning is not extensively employed. What little there is is all air cooled with no room for a water-cooled unit because of the shortage of water (a condition prevalent in most Latin American countries).

Two United States manufacturers in particular have been very active in Venezuela in the sale of the small window type of 1/2, 3/4, or 1-hp. sizes.

Spring In Charge of Weatherhead Exports

CLEVELAND—A. F. Spring has been appointed to the newly-created position of export manager of The Weatherhead Co.

He will have charge of all company exports throughout the world and will maintain his office at the main plant of The Weatherhead Co. in Cleveland.

A. F. Spring

Mitchell Names Export Agency

NEW YORK CITY—American Refrigeration Export Co. here has been appointed exclusive export sales representative for the air conditioning division of Mitchell Mfg. Co., Chicago, according to an announcement by Harry D. Friedman, of the export firm.

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DRY BEVERAGE COOLERS

Here's your chance to be the only one in your area to cash in on the sales of these high-quality Perfecold DRY Beverage Coolers. A complete line of four models—including two great new SELF-CONTAINED coolers—give you a powerful selling approach to every beverage outlet (big and small) in your community.

SELF-CONTAINED MODELS offer you real money-saving features to sell. No costly installations or wiring. No remote equipment to buy. Just plug in! Simplified maintenance, too—Mills 1/3 HP compressor easily slides out for servicing. No belts to break. No oiling necessary.

REMOTE MODELS provide maximum storage capacity, and round out your line so that every beverage store, bar, and fountain becomes a potential customer.

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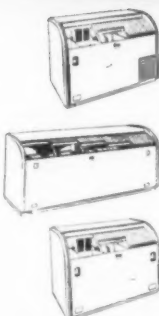
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MODEL 8S—8' length;
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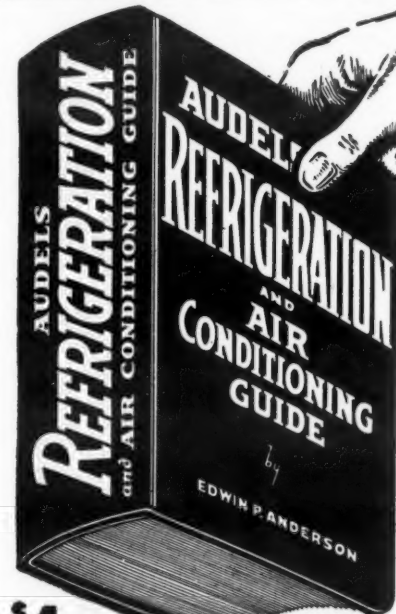
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2 Remote Models
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MODEL 3S—5' length; self-contained; capacity 18 cases.

MODEL 8R—8' length; remote; capacity 35 cases.

MODEL 5R—5' length; remote; capacity 21 cases.



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Shoe Store Air Cooled Even with Door Open



Among other alterations Baker's Shoe Store in Lincoln, Neb. reduced and relocated the air vents in its air conditioning system in order to augment the attractive appearance of the interior.

Addition of Pre-Cooling Coil to Air Conditioning System Ups Capacity 33%

LINCOLN, Neb.—By adding a pre-cooling coil to its air conditioning system, Baker's shoe store here increased the cooling capacity enough to permit the store to keep its front doors open in hot weather and attract customer traffic, according to E. G. Gothard, store manager.

The coil takes advantage of the fact that 60°F. water is readily available here, Max G. Lehman, Carrier dealer who handled the installation, declared. The cool water is passed through the pre-cooling coil on its way to the condenser, he said.

In effect, it adds an additional 2½ hp. to the 7½-ton air conditioning job, he asserted.

Mr. Gothard stated that it enables the store to maintain an ideal temperature inside even when the front doors are left open during hot weather.

Other changes were also made in the system to step up performance and to conform to remodeling improvements made in the store itself.

The original water regulating valve, with diaphragm cutout, was replaced by a new style valve. Nine spun glass angle slot air filters were installed to do away with dirtying all the filters in the same spot.

To add to the attractiveness of the selling floor and to better conform

with the construction of the building, cold air ducts were condensed and rechanneled. The number of outlets were reduced and the vents made smaller. All other air conditioning vents were concealed.

The complete remodeling job cost only \$800, Mr. Gothard said.

In addition, a new forced air heating system was also installed.

To help cut down the refrigeration load, cold cathode and fluorescent lighting fixtures were put in.

Mr. Gothard pointed out that this firm has found it a paying practice to engage a reputable air conditioning firm to service the store system regularly.

This is better, he believes, than depending upon "hit or miss" attention by store employees and than having to call in an expert serviceman when things get out of control.

Regular servicing by an authorized mechanic saves money in the long run, he declared.

In attempting to make Baker's the most modern and attractive shoe store in Nebraska, the firm has introduced for the first time in the state such features as draped side-walls with concealed lighting and the use of a California type boulevard front, Mr. Gothard said.

'ASC Control' Cuts Down Compressor Short Cycling

MINNEAPOLIS—Said to eliminate short cycling of the compressor, the new "ASC Control" developed by engineers of United States Air Conditioning Corp. is now being installed in all of the firm's Refrigerated Kooler-Aire units, the firm reports.

"Until the development of the 'ASC Control' there was no way to prevent short cycling," they claim. "It's been a problem because compressors are controlled from two sources. One is the space thermostat that responds to room temperatures; the other is a thermostat within the unit that responds to pressure changes in the refrigeration coils."

"In the past either one could start the compressor. It was the latter that actually caused short cycling."

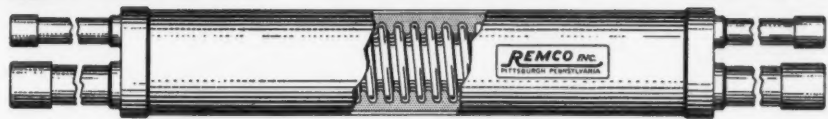
"With the 'ASC Control' the compressor starts only when the whole system is in operation in response to the space thermostat. The pressure thermostat serves to keep the compressor running at full efficiency."

Simon's Takes on Major Lines

NEW YORK CITY—With the change of its business location to First Ave. and 43rd St., directly opposite United Nations headquarters, the Simon's Refrigeration Equipment Co. has announced the expansion of its activities to include major appliances.

Formerly the firm engaged in servicing, sale, and installation of commercial and industrial refrigeration only.

REMCO "Liquid-Fin" Heat Exchangers



Soft annealed "O.D." tube liquid and suction connections simplify stocking, since they may be flared or sweat, bent to any desirable shape or direction or shortened as desired for the individual job.



Liquid flows inside the spiral corrugations in "prime" heat exchange relationship with the colder higher velocity suction gases which travel outside the rapid-transer "Liquid-Fin" heat exchanger element. Capacity per unit size is very high.

The industry now has sufficient test data and actual field experience on suction-liquid line heat exchangers to fully appreciate the substantial increase in system capacity and vast improvement in lowside and refrigerant control performance to be gained by their use. They now are accepted as standard components to be included in every new and existing commercial job. Keep in mind, the lower the lowside temperature, the greater the need for, and advantage of, a heat exchanger.

Straight through design of liquid and suction connections, plus 125% minimum flow areas, definitely precludes the possibility of pressure drop in either the liquid or suction circuit, even under maximum operating conditions.

Because the suction gas is on the outside, REMCO "Liquid-Fin" Heat Exchangers may be installed inside or outside of the refrigerated space.

ASK YOUR WHOLESALER . . . OR WRITE
REMCO, INC. ZELIENOPLE, PA.

FILLING ALL NEEDS

The Cutler-Hammer Line of REFRIGERATION REPLACEMENT CONTROL

This One Universal unit alone covers 60% of all needs.



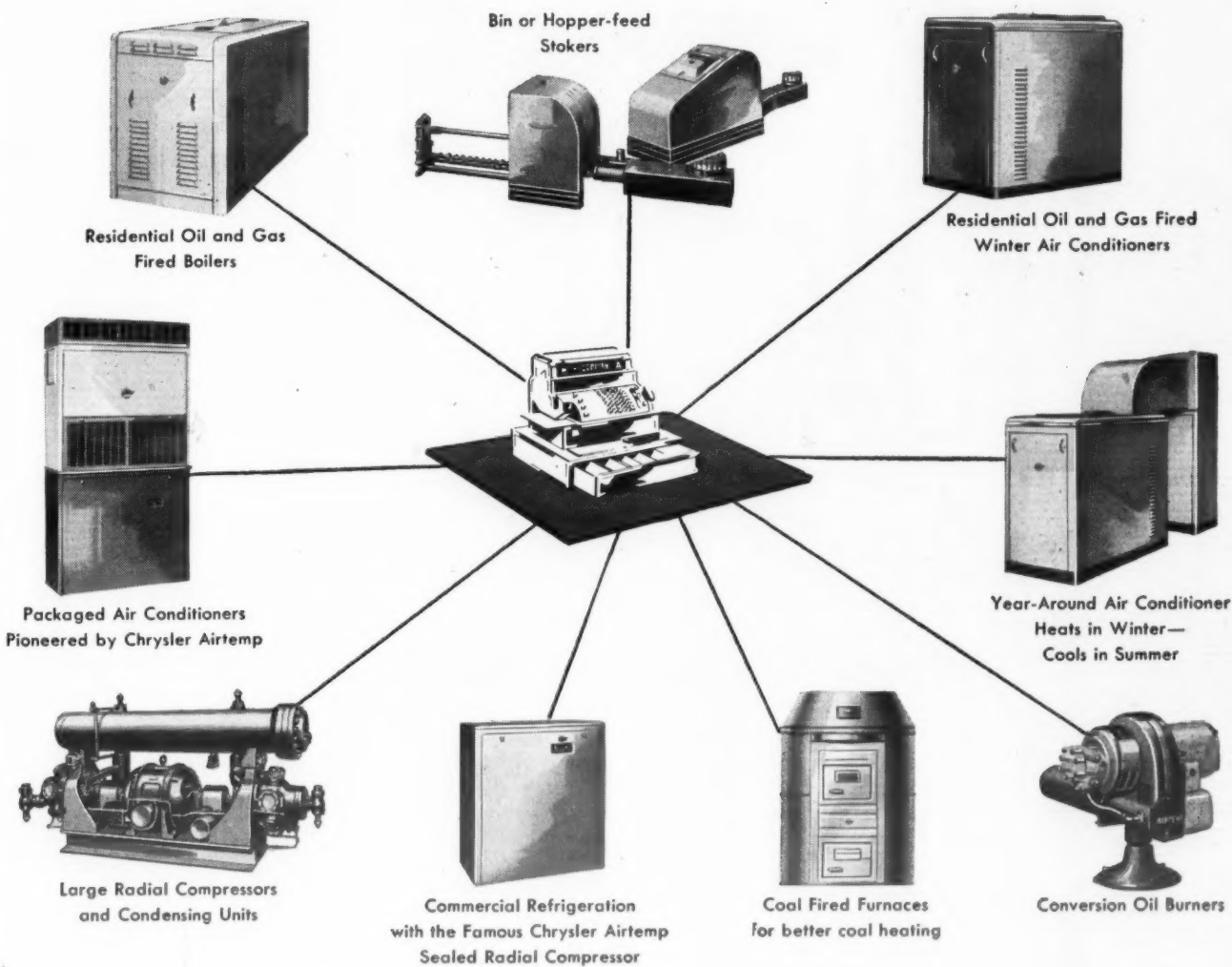
4 degree external differential adjustment either side of normal cutout

The Cutler-Hammer line of Refrigeration Replacement Control will meet all the refrigeration serviceman's requirements. One Cutler-Hammer Control Unit alone . . . the Universal Replacement unit . . . will handle 60% of his needs. And where exact replacement control is needed, that item also will be found in the C-H Exact Replacement Control line . . . individually packed, clearly labelled, complete with dial plate, mounting screws, trim washers and full instructions for mounting and adjustment.

Behind this line are 50 years of control specialization and thorough knowledge of merchandising requirements. Thus, the line is recommended by outstanding refrigeration wholesalers from coast to coast and alert service organizations everywhere use it to reduce investment in stock, to insure regular and rapid turnover, faster completion of the job, and greater all-round satisfaction. CUTLER-HAMMER, Inc., 1362 St. Paul Ave., Milwaukee 1, Wisconsin.



DOMESTIC, SEMI-COMMERCIAL AND COMMERCIAL CONTROL



THERE'S PROFIT IN THE AIR
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OF HEATING, AIR CONDITIONING
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THERE'S always profit in the air for Chrysler Airtemp dealers—every month of every year—because Chrysler Airtemp offers the complete Triple Line: Heating, Air Conditioning and Commercial Refrigeration.

And every product of Chrysler Airtemp carries the extra selling punch of public acceptance because it is backed by Chrysler Corporation—famous the world over for engineering and production skill.

Now is the time to put yourself in a position to make money with Chrysler Airtemp. Some franchises are still available—franchises for one line, two lines or the full Triple Line.

It will pay you to investigate right now—write, wire or 'phone for full details.

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Some Changes Made In 1947 Reports by Manufacturing Firms

WASHINGTON, D. C.—The figures on first quarter sales of air conditioning and commercial refrigeration equipment, as released by the Bureau of the Census, is based on reports submitted by 72 manufacturers.

Estimates were made for a few companies, representing only a small portion of the total industry, that did not submit their reports in time.

Shipment statistics included in the report apply to equipment actually billed and shipped. These figures are equivalent to completed sales. Complete units delivered on consignment or shipped to a branch warehouse for stocks are not included until such time as they are actually sold. Dollar values shown are the manufacturers' net billing prices, f.o.b. factory.

Data for some types of air conditioning and refrigeration equipment has been combined in the tables of the report in order to avoid disclosing the operations of individual firms.

The data collected for 1947, beginning with the first quarter, differs to some extent from that collected during 1946. The purchases section of the form has been eliminated. The column on production of units incorporated in unitary equipment made in the same plant has been revised and now calls for data on the number of compressors manufactured by reporting plants and incorporated into units reported as shipped. Ice-making machines which were formerly surveyed annually are now included in the quarterly report.

Air Conditioning, Commercial Refrigeration Shipments for the First Quarter of 1947

Table 1—Air Conditioning Equipment and Components and Accessories for Air Conditioning and Commercial Refrigeration Equipment: Summary of Shipments by Major Class of Product, First Quarter 1947

Product	Total		Domestic*		Export†	
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)
Section I—Components and Accessories						
Total	46,425,941	43,590,862	2,835,079			
Condensing units	312,254	22,590,275	298,992	20,925,200	13,262	1,665,075
Ammonia refrigerants	332	389,166	298	350,988	34	38,178
Refrigerants except ammonia	311,922	22,201,109	298,694	20,574,212	13,228	1,626,897
Air cooled	300,225	17,602,325	287,950	16,364,220	12,305	1,238,105
Open type	129,653	11,554,429	120,110	10,572,356	9,543	982,073
Hermetic type	170,602	6,047,896	167,840	5,791,864	2,762	263,032
Water cooled	11,667	4,598,784	10,744	4,209,992	923	381,792
Compressors, compressor units	147,832	8,320,720	135,954	7,762,050	11,878	553,670
Ammonia refrigerants	783	1,996,870	690	1,791,302	93	205,568
Refrigerants except ammonia	147,049	6,323,850	135,264	5,970,748	11,785	353,102
Centrifugal refrigeration machines	84	1,837,409	75	1,718,758	9	118,651
Heat exchanger equipment	13,677,537			13,184,854		492,683
Evaporative condensers	1,627	1,784,052	1,551	1,717,591	76	65,461
Unit coolers	48,385	5,608,699	46,109	5,361,996	2,276	246,703
Air conditioning	3,929	1,474,532	3,864	1,451,527	65	23,005
Refrigeration	44,456	4,134,167	42,245	3,910,469	2,211	223,698
Other heat exchanger equipment†		6,284,786		6,105,267		179,519

Section II—Self-Contained Air Conditioning Units and Ice Making Machines

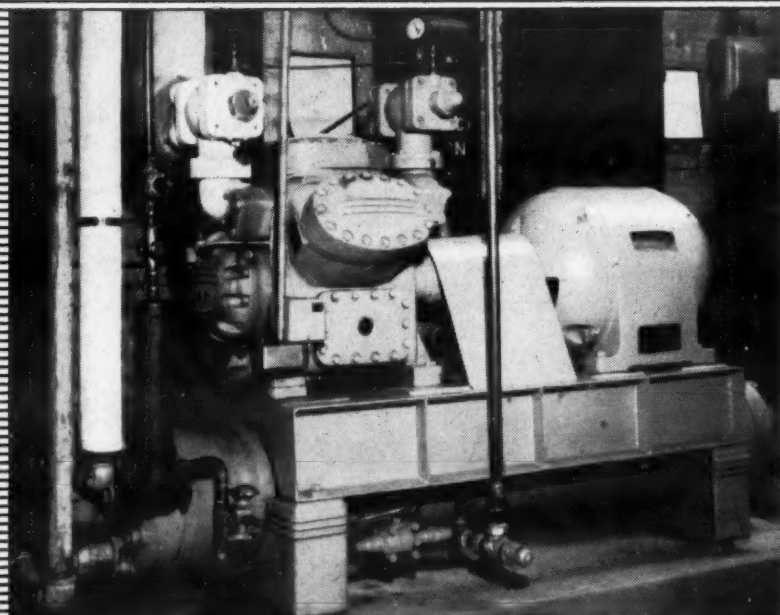
Self-contained air conditioning units	18,749	9,168,212	17,096	8,477,909	1,653	690,303
Room type	11,656	2,691,627	10,207	2,243,435	1,449	448,192
Other than room type	7,093	6,476,585	6,889	6,234,474	204	242,111
Ice making machines	1,934	1,268,742	1,779	805,648	155	463,094

*Continental United States. †Includes Canada, Mexico, and United States territories.

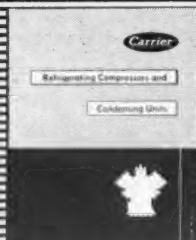
†Includes condensers and liquid coolers, shell and tube and shell and coil types, as well as fin coils (heating and cooling), and plate type evaporators.

Table 2—Air Conditioning Equipment and Components and Accessories for Air Conditioning and Commercial Refrigeration Equipment: Shipments by Type of Product, First Quarter

Product	Shipments of Complete Units						No. of Comps. Made by Reporting Firms and Used in Units Reported as Shipped	No. of Units Reported as Shipped
	Total		Domestic*		Export†			
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)		
Section I—Components and Accessories								
Total	46,425,941	43,590,862	2,835,079					
Condensing Units, Total	312,254	22,590,275	298,992	20,925,200	13,262	1,665,075		
Refrigerants except ammonia, total	311,922	22,201,109	298,694	20,574,212	13,228	1,626,897		
Air cooled, total	300,255	17,602,325	287,950	16,364,220	12,305	1,238,105		
Open type, total	129,653	11,554,429	120,110	10,572,356	9,543	982,073		
1/4 hp. and under	3,863	169,056	3,333	147,053	530	22,003		
1/4 hp.	30,125	1,863,538	27,366	1,666,460	2,759	197,078		
1/2 hp.	54,210	3,839,457	51,291	3,599,570	2,919	239,887		
3/4 hp.	22,889	2,241,353	21,216	2,059,814	1,673	181,539		
1 hp.	8,009	1,136,580	7,348	1,029,666	661	106,914		
1 1/2 hp.	4,674	821,743	4,268	746,019	406	75,724		
2 hp.	2,964	681,744	2,730	620,535	234	61,209		
3 and 5 hp.	2,104	552,044	1,866	489,425	238	62,619		
	815	248,914	692	213,814	123	35,100		



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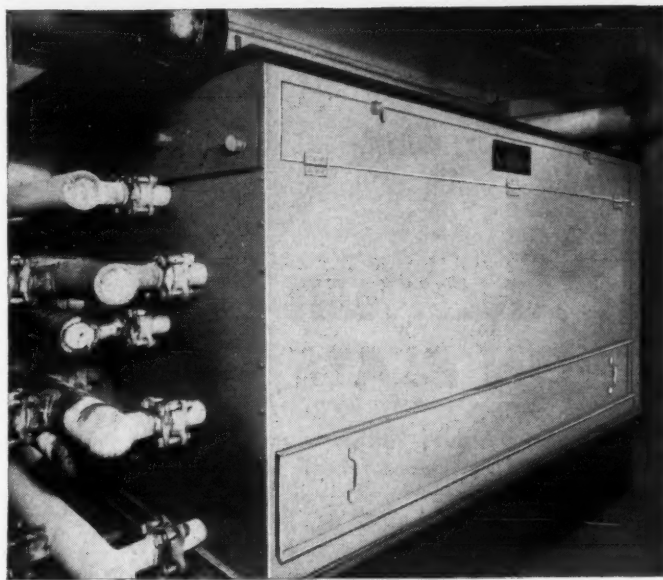
2100 INDIANA AVE CHICAGO 16 ILLINOIS

Table 2 (Cont.)—Air Conditioning Equipment and Components
And Accessories for Air Conditioning and Commercial
Refrigeration Equipment: Shipments by Type of
Product, First Quarter 1947

Product	Shipments of Complete Units		Shipments of Complete Units		No. of Comps. Made by Reporting Firms and Used in Units Plants Reported as port- ing	No. of Units Shipped
	Total No.	Total Value (dollars)	Domestic No.	Domestic Value (dollars)	Export No.	Export Value (dollars)
Hermetic type.						
total	170,602	6,047,896	167,840	5,791,864	2,762	256,032
1/2 hp. and under	123,527	2,877,858	123,446	2,874,624	81	3,234
3/4 hp.	23,544	1,509,223	22,371	1,418,505	1,173	90,718
1 hp.	20,247	1,345,358	19,051	1,227,438	1,196	117,920
1 1/2 hp.	3,284	315,457	2,972	271,297	312	44,160
2 hp. and over	11,667	4,598,784	10,744	4,209,992	923	388,792
Water cooled, total						
1/2 hp. and under	62	5,951	45	4,393	17	1,558
3/4 hp.	1,690	222,042	1,529	201,181	161	20,861
1 hp.	1,830	306,429	1,749	293,559	81	12,870
1 1/2 hp.	1,244	226,934	1,176	214,717	68	12,217
2 hp.	947	227,559	903	217,447	44	10,112
3 hp.	1,131	321,850	987	282,446	144	39,404
5 hp.	1,075	367,992	998	343,655	77	24,337
7 1/2 hp.	1,753	841,346	1,587	755,702	166	85,644
10 hp.	690	498,594	639	461,332	51	37,262
15 hp.	470	420,802	417	370,188	53	50,614
20 hp.	303	341,237	280	319,134	23	22,103
25 hp.	159	235,260	138	198,855	21	36,405
30 hp.	145	205,116	141	198,693	4	6,423
40 hp.	58	102,410	54	95,455	4	6,955
50 hp. and over	63	132,078	58	119,098	5	12,980
Ammonia refrigerants						
Reciprocating water cooled, total	332	389,166	298	350,988	34	38,178
3 hp. and under	15	8,301	14	7,414	1	887
5 hp.	57	37,997	52	33,850	5	4,147
7 1/2 hp.	42	36,650	39	34,507	3	2,143
10 hp.	96	104,314	82	89,103	14	15,211
15 hp.	86	121,234	80	115,482	6	5,752
20 hp. and over	36	80,670	31	70,632	5	10,038
Compressors and compressor units,						
total	147,832	8,320,720	135,954	7,762,050	11,878	558,670
Refrigerants except ammonia, total						
1/2 hp. and under	115,568	2,870,068	107,724	2,753,902	7,844	116,166
3/4 hp.	10,777	364,455	10,362	354,042	415	10,413
1 hp.	11,883	359,629	11,448	343,673	435	10,413
1 1/2 hp.	2,341	126,830	2,185	101,313	156	25,517
2 hp.	1,129	69,573	1,014	62,051	115	7,522
3 hp.	13	2,330	13	2,330	0	0
5 hp.	1,261	98,473	1,194	92,531	67	5,942
7 1/2 hp.	761	84,521	760	84,434	1	87
10 hp.	1,308	270,060	1,269	261,397	39	8,663
15 hp.	255	167,516	241	159,142	14	8,374
20 hp.	588	309,036	567	296,726	21	12,310
25 hp.	343	313,248	330	304,789	13	8,459
30 hp.	245	247,570	210	220,012	35	27,558
40 hp.	162	203,356	162	203,356	0	0
50 hp.	45	73,777	43	70,856	2	2,921
60 hp.	174	351,283	167	339,633	7	11,650
75 hp.	119	224,107	101	200,947	18	23,160
100 hp.	57	116,396	54	108,992	3	7,404
125 hp.	10	31,413	10	31,413	0	0
150 hp. and over	10	40,209	10	40,209	0	0
Ammonia refrigerants,						
total	783	1,996,870	690	1,791,302	93	205,568
7 1/2 hp. and under	66	47,565	60	44,196	6	3,369
10 hp.	41	28,146	36	24,647	5	3,499
15 hp.	54	62,784	45	51,664	9	11,120
20 hp.	87	93,532	85	91,365	2	2,167
25 hp.	49	70,016	43	62,498	6	7,518
30 hp.	87	147,304	73	124,323	14	22,981
40 hp.	86	180,032	79	168,207	7	11,825
50 hp.	44	97,703	41	92,798	3	4,905
60 hp.	84	234,765	70	202,747	14	32,018
75 hp.	48	185,140	40	165,306	8	19,834
100 hp.	50	235,534	37	193,389	13	42,145
101 hp. and over	87	614,349	81	570,162	6	44,187

(Tabulation is continued on page 24)

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Regardless of either variation in the cooling load or intermittent operation, the new Niagara Liquid Cooler holds the delivered temperature accurately at the required point. It will deliver fresh water at 33°F. constantly without danger of freezing damage and produces lower temperatures accurately in non-freezing chemical liquids and solution.

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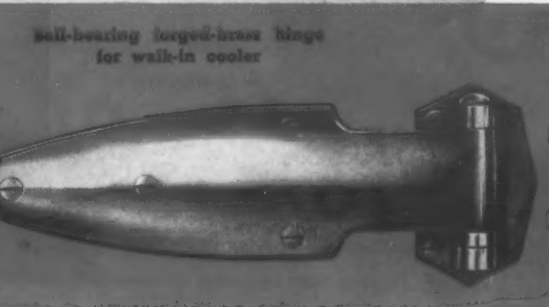
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Service Engineers and commercial users throughout the refrigeration industry are now specifying HM Condensers for replacement and conversion orders. These new HM units combine two features never before obtainable in tube-within-a-tube water-cooled condensers; (1) They're **CLEANABLE** . . . the water tubes are easily accessible at both ends for the spiral cleaning tool to restore the interior water surfaces to

"new-unit" efficiency. (2) A **TRUE-COUNTER-FLOW** relationship is achieved between the coolant and the refrigerant through a unique seamless copper tube-within-a-tube construction that makes obsolete most types of similar water-cooled condensers. Thus, water and space requirements are reduced substantially and a most economical operation is obtained.

JOBBERS in all principal cities carry HM condensers in stock for immediate delivery.

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OFFICES: Bessemer Building, Pittsburgh 22, Pa.

Table 2 (Cont.)—Air Conditioning Equipment and Components And Accessories for Air Conditioning and Commercial Refrigeration Equipment: Shipments by Type of Product, First Quarter 1947

Product	Shipments of Complete Units				No. of Plants Reporting
	Total No.	Value (dollars)	Domestic* No.	Value (dollars)	
Centrifugal refrigeration machines (water and brine chilling), total	84	1,837,409	75	1,718,758	9
200 hp. and under	33	443,675	25	342,530	8
201 to 400 hp.	29	637,350	28	619,844	1
401 hp. and over	22	756,384	22	756,384	0
Heat exchanger equipment, total	13,677,537	13,184,854	492,683	47	
Evaporative condensers, total	1,627	1,784,052	1,551	1,717,591	76
Under 3 tons	28	6,634	27	5,611	1
3 to 5 tons	202	51,631	184	47,553	18
5.1 to 7.5 tons	124	53,837	120	51,707	4
7.6 to 10 tons	185	113,618	178	108,713	7
10.1 to 15 tons	187	138,312	166	121,778	21
15.1 to 20 tons	113	96,665	110	94,099	3
20.1 to 30 tons	298	329,408	294	325,454	4
30.1 to 50 tons	305	473,176	293	455,163	12
50.1 to 100 tons	172	454,881	167	444,650	5
Over 100 tons	13	65,890	12	62,863	1
Unit coolers, total	48,385	5,608,699	46,109	5,361,996	2,276
Air conditioning remote type, total	3,929	1,474,532	3,864	1,451,527	65
3 tons and under	1,964	156,363	1,931	155,280	33
3.1 to 5 tons	340	109,835	336	108,906	4
5.1 to 10 tons	433	207,093	426	204,813	7
10.1 to 25 tons	860	608,269	846	593,016	14
Over 25 tons	332	397,972	325	389,532	7
Refrigeration total	44,456	4,134,167	42,245	3,910,469	2,211
Ceiling and wall mounted, total	43,213	2,929,953	41,057	2,756,448	2,156
1,000 B.t.u./hr. and under	200	5,854	195	5,500	5
1,001 to 2,000 B.t.u./hr.	15,110	541,145	14,801	530,536	309
2,001 to 4,000 B.t.u./hr.	8,773	357,865	8,387	335,803	386
4,001 to 6,000 B.t.u./hr.	3,697	215,219	3,334	191,340	363
6,001 to 8,000 B.t.u./hr.	4,020	301,509	3,678	275,015	342
8,001 to 12,000 B.t.u./hr.	4,440	435,491	4,061	397,049	379
12,001 to 18,000 B.t.u./hr.	3,268	383,555	2,958	339,700	310
Over 18,000 B.t.u./hr.	3,705	689,315	3,643	681,505	62
Floor mounted dry type, total	883	705,239	850	677,722	33
5 tons and under	443	244,750	423	231,964	20
5.1 to 7.5 tons	200	158,703	193	153,412	7
7.6 to 10 tons	107	143,846	106	141,778	1
10.1 to 15 tons	102	114,045	98	108,888	4
Over 15 tons	31	43,945	30	41,680	1
Floor mounted spray type, total	360	498,925	338	476,299	22
5 tons and under	21	15,359	19	14,247	2
5.1 to 7.5 tons	130	189,069	118	178,032	12
7.6 to 10 tons	50	65,369	47	60,815	3
10.1 to 15 tons	88	112,169	83	106,246	5
Over 15 tons	71	116,959	71	116,959	0
Other heat exchanger equipment, total	6,284,786	6,105,267	179,519	33	
Condensers, shell and tube and shell and coil	869,260	820,656	48,604	16	
Shell and tube liquid coolers	279,390	273,732	5,658	9	
Shell and coil liquid coolers	38,838	37,468	1,370	8	
F'in coils—heating other than forced air units	1,247,697	1,240,129	7,568	12	
F'in coils—cooling other than forced air units	2,189,980	2,121,193	68,787	20	
Evaporators, plate type	1,659,621	1,612,089	47,532	8	

Section II—Self-Contained Air Conditioning Units and Ice Making Machines

Self-contained air conditioning units, total	18,749	9,168,212	17,096	8,477,909	1,653	690,303	15
Room type, total	11,656	2,691,627	10,207	2,243,435	1,449	448,192	4
Window sill type	6,608	1,208,510	6,589	1,205,634	19	2,876	3
Floor type	5,048	1,483,117	3,618	1,037,801	1,430	445,316	3
Other than room type, total	7,093	6,476,585	6,889	6,234,474	204	242,111	14
3 tons and under	2,043	1,223,973	1,965	1,171,508	78	52,465	11
5 tons	4,071	3,334,435	3,985	3,264,585	86	69,850	12
7.5 tons	438	590,401	429	578,926	9	11,475	7
10 tons	281	563,131	269	538,297	12	24,834	7
15 tons	173	437,261	165	414,933	8	22,328	6
20 tons	28	82,255	28	82,255	0	0	3
Over 20 tons	59	245,129	48	183,970	11	61,159	5
Ice making machines	1,934	1,268,742	1,779	805,648	155	463,094	5

*Continental United States. †Includes Canada, Mexico, and United States Territories.

Bowen Supplies Catalog Gives Prices with Product Listing

ATLANTA—Bowen Refrigeration Supplies, Inc. here has recently announced the publication of its new Catalog No. 47, which gives list prices so that the catalog may be used with the customer.

Within the new catalog the products are listed according to commodity, regardless of the manufacturer, to further aid the user in finding the item he wants faster, according to David Galloway, vice president.

To aid the serviceman in selecting the proper replacement parts technical information is included with the listings, the company pointed out.

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The KEY to Air Conditioning

By James J. LaSalvia

Editor's Note: The need and desire of the consuming public for air conditioning, especially comfort cooling, is great, and thus obviously offers a tremendous market for the dealer and salesman who is prepared to sell it. But to be able to sell air conditioning successfully, one must have a good, practical understanding of how the various components that make up a system should be combined and installed.

To help dealers and salesmen acquire this knowledge the NEWS is publishing this series written by a veteran air conditioning engineer. Previous articles took up ventilation and air requirements. This instalment begins a discussion of refrigeration as employed in air conditioning.

Refrigeration

Refrigeration is the extraction of heat.

Refrigeration is noted in B.t.u. or tons of refrigeration.

A ton of refrigeration as applied to air conditioning, is defined as the melting of one ton (2,000 lbs.) of ice over a period of 24 hours.

When a pound of ice melts at 32° F., it requires 144 B.t.u.

Then: $2,000 \times 144 \text{ B.t.u.} = 288,000 \text{ B.t.u.}$ for 24 hours.

A ton of refrigeration as used in the calculations may be noted in the following three ways:

1. 288,000 B.t.u. per 24 hours or day.
 2. 12,000 B.t.u. per hour.
 3. 200 B.t.u. per minute.
- Throughout the text 12,000 B.t.u. per hour will be used to designate one ton of refrigeration.

COOLING AND DEHUMIDIFYING

Cooling and dehumidifying of air for various problems is accomplished in the following general methods:

1. Cooling only.
2. Dehumidifying only.
3. Cooling and dehumidifying simultaneously.

COOLING ONLY

a. Cooling only is very seldom called for in comfort cooling systems, but it may be used advantageously during the lowering of the temperature of the air by what is termed "pre-cooling."

Water from 58° to 65° F. temperature is usually used for the pre-cooling, as this temperature is about the same or over the dewpoint temperature of the air passing through the coils, in which the water is circulating.

b. An evaporative cooling system is one which has a limited use for comfort cooling. It is adaptable for best results in those locations where in general the outside temperature is very high and the relative humidity is very low; more specifically where the outside wet bulb temperature ranges between 62° and 72° F., and in spaces where there are few people.

An air washer should be used for this type of system. City water is fed to the pan of the air washer, and a circulating pump is used to take the water out of the pan and spray it in the air stream in the washer.

The principle upon which this type of system operates is based on cooling the air entering the washer to its wet bulb temperature. It is practically impossible to accomplish complete saturation in general practice on this type of a system, so that it becomes necessary to use such equipment which will help to get as close to saturation as possible.

The degree of saturation reached will depend upon the amount of air used, amount of water used at the sprays, and the number of spray banks used in the air stream.

One bank of sprays will give about 75% saturation efficiency. Two banks of sprays will give about 90% saturation efficiency. Three banks of sprays will give about 98% saturation efficiency.

A special type air washer known as the capillary air washer, using glass mats about 8 in. deep upon which the water is sprayed and through which the air also passes will give a saturation efficiency, if properly applied, up to 99%.

In this method of cooling, the total heat of the entering air remains constant as the wet bulb temperature remains constant. The dewpoint temperature of the entering air is increased to the wet bulb, thereby increasing the latent heat of the air, while the dry bulb temperature of the entering air is lowered to the wet bulb, thereby reducing the sensible heat of the air.

The reduction of sensible heat is changed to latent heat, and as there has been no heat added or subtracted during the operation, this is known as "Adiabatic Saturation of Air."

For a proper evaporative cooling system all outside air should be used. The amount of air should be about 15 air changes per hour for the space to be cooled. For spaces where people congregate the air should be supplied as close to the breathing line (6 ft. above floor) as possible,

and the velocity of the air in the space should be not less than 100 f.p.m. to be most effective.

The amount of water to be used at the sprays should be based on about 1 g.p.m. per each 100 c.f.m.

A general application of such systems is for cooling transformer rooms, electrical equipment rooms, and storage spaces.

EXAMPLE

With an outside condition of 95° d.b. and 72° w.b. temperature, a space is to be maintained at 85° d.b. temperature. The internal sensible heat is 405,000 B.t.u. per hour and the washer to be used has an efficiency of 98% saturation.

a. What is the temperature of the air entering space?

b. What is the amount of air to be used?

c. What is the amount of water to be circulated?

$$(a) (95^\circ - 72^\circ) \times .98 = 22.5^\circ \text{ cooling of the air.}$$

$$95^\circ - 22.5^\circ = 72.5^\circ \text{ F. d.b. temperature of the air entering space.}$$

The w.b. remains constant at 72° F. and the d.p. temperature is 71.5° F.

$$405,000 \text{ B.t.u. per hour}$$

$$(b) 1.08 \times (85^\circ - 72.5^\circ) =$$

$$30,000 \text{ c.f.m. of air required.}$$

$$(c) 30,000 \text{ c.f.m.} =$$

$$100 \text{ c.f.m.}$$

$$300 \text{ g.p.m. of water circulated.}$$

Velocity of the air through the washer should be about 500 f.p.m.

(To Be Continued)

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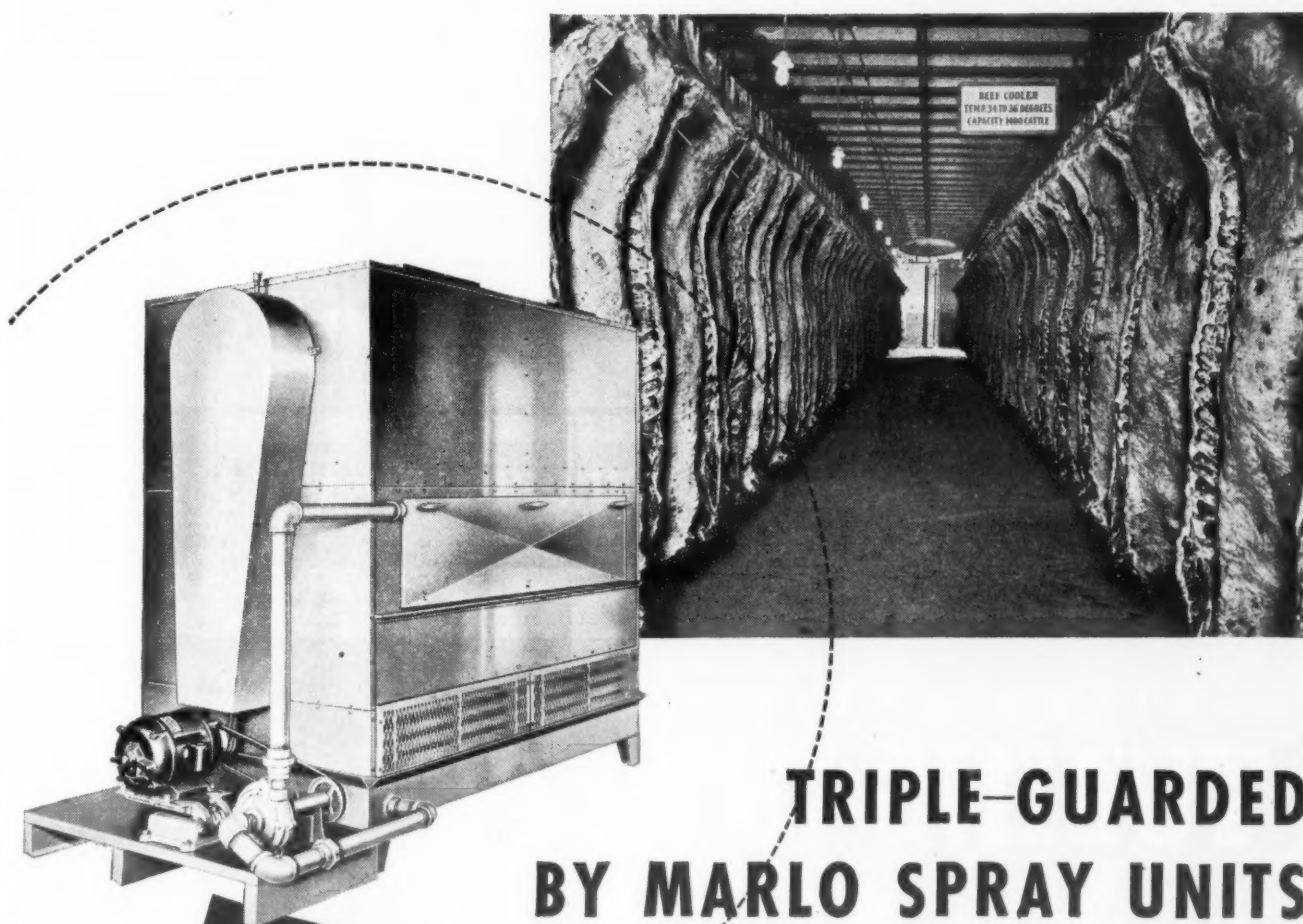
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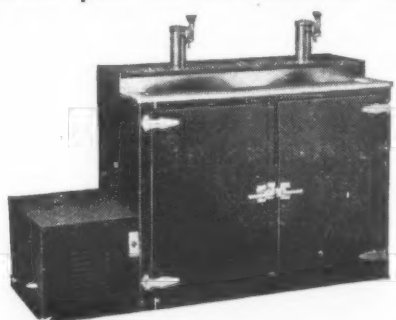
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The Lubrication of Refrigeration Systems

LOS ANGELES—Lubrication problems of refrigeration compressors as viewed by the refining industry were outlined in detail when Edgar S. Ross of the Sun Oil Co.'s industrial products department addressed the spring meeting of the American Society of Refrigerating Engineers here.

Some of Mr. Ross's discussion concerned the actual refining processes, but there was much devoted strictly to the problem of lubricating compressors. Excerpts from this section of the paper follow:

"Until the coming of domestic refrigeration, 'ice machine oils,' as they were usually called, were given very little special consideration. This was because the older types of ammonia and carbon dioxide machines could be lubricated efficiently with ordinarily good lubricating oils and were no more of a problem than pumps or gasoline engines.

"The household unit, however, introduced something new. First of all it demanded long service without any maintenance attention; secondly,

it led to the wide use of a number of refrigerants that had previously been of little practical importance. These two things made the durability of oil much more important and also called for oils having properties not previously demanded.

"At about the same time, changes were taking place in commercial machines. Higher speeds, lower temperatures and improved efficiency were being called for.

New Type Oils Developed

"This meant that the lubricating problems in the refrigeration field became of more importance. Oils which had been satisfactory were no longer quite good enough. High grade ammonia oils failed completely when used for sulphur dioxide, and various other difficulties appeared.

"So refiners were stimulated to turn their attention to a branch of their business which, while very old in one sense, had suddenly become quite new in another.

"Refrigeration oils today should

possess the following essential qualities:

"1. Must maintain a good body at a fairly high temperature.

"2. Must have a good fluidity and form an effective oil film at the lowest temperatures encountered.

"3. Must be free from carbonizing tendency when exposed to so-called 'hot spots' in operating systems.

"4. Must not throw out sticky, waxy deposits at low temperatures.

"5. Must not react chemically with refrigerants.

"6. Must separate rapidly from the refrigerant.

"7. Must be free from all but traces of moisture.

"8. Must have extremely low pour and floc points.

"9. Must be neutral and non-corrosive and remain so in service.

"10. Must possess unusual degree of stability in service, thus assuring long life.

"Oils absorb minute amounts of water from the air. So in handling oils, particularly for use with sulphur

Editor's Note: This is the first part of an article excerpted from the paper "New Developments In Refrigerant Lubricants" presented by Edgar S. Ross of the Development Division, Sun Oil Co., before the mid-year meeting of the American Society of Refrigerating Engineers.

The information contained in the paper presented by Dr. Ross offers probably the most comprehensive data yet presented on the subject of lubrication of refrigeration systems of all sizes, and air conditioning systems.

dioxide, it is important to keep the package sealed tight. It is also wise to store oil in dry and warm quarters.

"None of the other generally used refrigerants react with properly refined oils chemically, but dampness causes the oil to lose some of its low temperature qualities. Water present will freeze out and can easily cause mechanical trouble. So it is always wise to take the greatest precautions to keep dampness out.

Larger Variety of Grades

"Not only do modern refrigeration oils have to possess new qualities, but it has also been found necessary to make more grades than was the old time practice. Ammonia and carbon dioxide do not dissolve in oil and reduce the viscosity. Sulphur dioxide does this to some extent and the chlorinated refrigerants dissolve oil as readily as does gasoline.

"So the older types of machines used oil as a lubricant in the same condition as it was when put in, while machines with the new refrigerants thin the oil to a greater or lesser degree and the lubricating is really done by a mixture of oil and refrigerant. This means that we have to start with heavier oil when using refrigerants that have a diluting effect on the oil.

"Frequently lubricating engineers and salesmen are confronted with operating problems for which the manufacturers or operators of refrigerating equipment might be inclined to blame the lubricating oil and even condemn the grade or brand of oil they are using.

Refrigerant May Harm Oil

"It is our experience that quite frequently in such cases, mechanical conditions of the equipment need to be adjusted to special operating conditions, that water has entered the system and caused the trouble, or that the refrigerant used had an adverse effect on the lubricating oil.

"The various refrigerants used at the present time have different effects on lubricating oils.

"Anhydrous ammonia has practically no effect on a properly refined

lubricating oil. Due to its low solubility in oil, it does not lower the viscosity of the refrigerating oil. In the presence of moisture, however, ammonia will emulsify with oil at the prevailing compressor temperature. Therefore, the oil should be 'dry' and care must be taken that water be kept out of the system to prevent freezing in the expansion coils, with consequent shut-downs, and the formation of oil emulsions which might cause considerable difficulty.

"Carbon dioxide has no effect on oil, since oil is not soluble in this refrigerant. Good lubricating oils have a sufficiently high flash point to prevent the formation of vapors which might be carried along with the refrigerant.

"Sulphur dioxide must be perfectly dry before it is introduced into the system, because this refrigerant is very soluble in water, forming a strongly acidic and highly corrosive solution. The lubricating oil likewise must be practically free from moisture for the same reason.

SO₂ Doesn't Mix Easily

"Sulphur dioxide is not fully miscible at ordinary temperatures with pure lubricating oils and will not reduce its viscosity. Since SO₂ is a selective solvent, only highly refined oils should be used for the lubrication of units using SO₂ as refrigerant; otherwise the oil will be affected and form a gummy sludge which will settle out, clog nozzles or cause valve sticking, and thus obstruct efficient operation of the system.

"The newer types of halogenated refrigerants do not react chemically with a high-grade well-refined refrigerant oil. They are miscible with the oil and lubrication is performed by a mixture of oil and refrigerant.

"The 'Freons' are completely miscible in mineral oils over a wide temperature range and consequently will reduce the viscosity of the oil. Therefore, an oil with sufficiently high viscosity has to be used so that after dilution proper lubrication will be provided.

"The dilution effect on viscosity when 'Freons' are admixed, as well as the solubility relationships under various conditions of temperature and pressure, have been rather extensively studied.

Separation of Wax In Oils

"It has been found that some oils show separation of wax at various degrees on cooling, and that 'Freons' have a reaction on certain oils which in some cases causes separation of wax.

"The effect of 'Freon' refrigerants on the viscosity of the oils is of fundamental interest to the refrigerating engineer and affects the operation of a refrigerating unit. The refrigerant must not only carry a sufficient quantity of lubricating oil to the moving parts but the oil must have sufficient viscosity to properly lubricate the equipment in spite of dilution by the refrigerant.

"Methylene chloride is another halogenated hydrocarbon refrigerant frequently used for systems equipped with centrifugal or rotary type compressors. The reaction and miscibility of this refrigerant with lubricating oil are very similar to those of the 'Freon' group, therefore recommendations for lubricating oils should be guided by the same considerations as for 'Freon'-refrigerated systems.

"Methyl chloride gas dissolves in oil in somewhat limited proportions at temperatures and pressures encountered in refrigerating systems. It does not react chemically with well-refined lubricating oils.

More Complex Relationships

"In the days when commercially used refrigerants had little or no solubility effect on the oils used, it was not necessary to be concerned about such things as viscosity dilution, wax formation, etc.

"However, with the now prevalent use of halogenated refrigerants, it is pertinent that we know more about the oil-refrigerant relationships, such

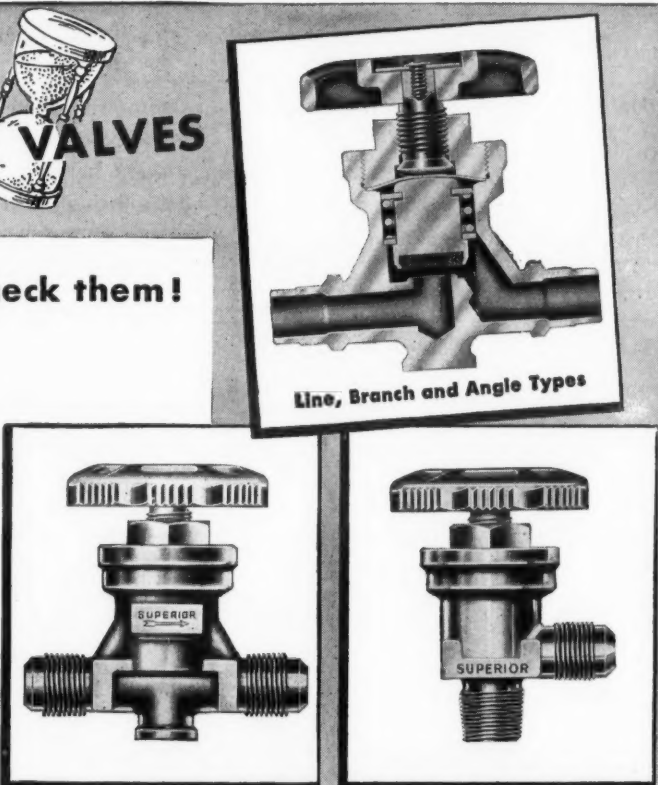
(Continued on next page)

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Edgar S. Ross' ASRE Paper Outlines New Developments In Refrigerant Lubricants

(Continued from preceding page)

as miscibility, solubility in both liquid and vapor phases, emulsibility, etc., and the effect or function of temperature and pressure on these relationships. Some considerable work has been done along these lines by both refrigerant and oil manufacturers, so that today information is readily available on this subject.

"Many so-called short or laboratory tests have been employed in attempts to evaluate oils prior to their actual use in compressors, etc. Each of these tests has had a main and common point of view—the stability of oil in actual service, or in other words, a pre-service determination of changes in oil characteristics that would occur in actual service.

"Exclusive of other points of unsuitability, most of these tests were deficient in that the factor of time was entirely inadequate, a condition that led to many erroneous, and in some cases disastrous, conclusions on such items as effect of degree of refining, inhibitors, copper plating, etc.

"By establishing proper time factors for these various tests, it has been possible to obtain test results that can be safely and soundly used to evaluate oils, at least with considerable certainty as to lack of suitability and in most cases as to specific suitability in various types of service.

Mineral Oil Hygroscopic

"The presence of water or moisture in any form within a refrigerating system is acknowledged to be undesirable. Oils have often been under suspicion as the source of sufficient moisture to bring about undesirable reactions in these systems. Actually, mineral oils are somewhat hygroscopic, and therefore a reasonable degree of care must be exercised where the presence of usually insignificant amount of moisture assumes some significance.

"As ordinarily prepared, packaged, and shipped, refrigerator oils have such a low content of moisture that they have a dielectric strength value well in excess of 25,000 volts. Unless the system itself contains further amounts of water, such as in air space and metal surfaces, or refrigerant, the evidently slight trace of moisture in the oil is of no significance.

Moisture Problem Overcome

"With the present care exercised in completely dehydrating all systems initially as well as introducing drying cartridges, trouble due to moisture have largely disappeared. Clogging due to ice, corrosion, and copper plating, are now very largely matters of the past, or at worst, of rather infrequent occurrence.

"In recent months some claims have been made regarding the merits of certain addition agents, in that they completely nullified the deleterious effects of moisture. Frankly, the chemical nature and behavior of these agents do not inspire much enthusiasm for their extensive use. Careful attention to dehydrating procedures is thought to be much more reliable and desirable.

"In refrigerating units, with halogenated refrigerants, in which considerable amounts of copper are used in coils, tubing, electric motors, etc., an 'electrolytic' action may take place (in presence of moisture) and metallic copper will be deposited on cylinder walls, pistons, valves, bearings, etc., and cause difficulties in the operation of the compressors.

"Lubricating oils and refrigerants were formerly blamed as the source of this trouble. Most extensive investigations in refinery laboratories were carried out in order to ascertain if the lubricating oil contributed to these troubles.

'Copper Plating' Remedies?

"Some people advocated the use of very highly refined white oils to stop this 'copper plating.' Special coatings applied by the manufacturers in some cases to prevent 'copper plating' did not solve the problem, because frequently they were attacked by the refrigerant or by over-refined oils; cracks developed in the coating, exposing the copper to the electrolytic action in the system.

"Results of careful and thorough investigation have proven that merely using white oils in such cases will not prevent 'copper plating.' Actually, these too highly refined oils are likely to develop corrosive acids and increase the copper solubility and thereby tend to promote copper plating, if the other conditions necessary to induce and contribute to this chemical and electrolytic process are present.

"It is known that copper dissolves slightly in oil but it is also an established fact that excessive moisture must be present to initiate this process before metallic copper is separated and deposited in the system.

"This has been very forcibly proven, because as soon as efficient dehydrating cartridges were introduced in such refrigerating systems and properly refined pale oils used for lubrication, the difficulties previously caused by copper plating practically disappeared.

"Manufacturers of sealed units cooperated in this endeavor and are now carefully drying out the system, frequently by 'baking' it, before charging refrigerant and lubricating oil. The producers of refrigerants, as well as oil refiners, use every care and precaution to keep moisture in their products at an absolute minimum.

"When the matter of copper plating became outmoded, a new topic of discussion arose in the refrigerating industry—the formation of wax in refrigeration systems. And again, true to form, the medal of suspicion was pinned on the lubricating oil used.

Reason For Wax Formation

"No mention was made, at least in defense of oils, that certain refrigerants have the characteristic of acting as a solvent dewaxing agent on oil and causing the inherently present waxy compounds to separate as crystalline or amorphous waxes at low temperatures.

"Nevertheless, this does happen to be the case, and due to changes that the refrigerating industry had of its own volition introduced, the lubricating oils were unwittingly placed in an unfavorable light.

"Going to lower and lower temperatures has resulted in 'plating out' of oil of high viscosity, resulting in excessive reduction of flow space in capillary tubes, even to the point of actual stoppage.

"There has been no fundamental change in the chemical and physical characteristics of available oils in recent years. There have always been certain quantities of waxy materials in oils, varying in degree with type and treatment.

"In the case of wax formation, new changes, such as expansion valves with right-angle flow line and smaller diameter capillary tubing, welding together of hot and cold lines, etc., as well as new refrigerants, have brought about difficulties that did not exist before.

"The new refrigerants cause greater separation of waxy material on low temperature side of the system. These solids are carried along in the liquid stream through the expansion valve, and formerly passed on through in a straight-line flow, but now they impinge on side wall due to right-angle turn and build up a heavy layer of wax.

Wax Clogs Capillary Tubes

Periodically the wax breaks off in large chunks and passes on into the capillary tubes which may be clogged up more or less permanently depending on the type of wax.

"The soft amorphous wax obtained from some oils, clogs tubing temporarily until pressure builds up sufficiently to push it through, but with the hard, crystalline waxes increasing pressure merely tightens the wax plug and flow through the tubing is completely stopped.

"On this count again, the already well established grades of oil are demonstrating their reliability. They show only the normal increase in wax content as temperature is lowered and their subsequent behavior can thus be pre-determined with some degree of certainty. In fact, recent improvements have eliminated all separation to temperature as low as -90° F.

"A more recent subject of discussion in which oil has been concerned, has to do with the use of parts that have been surface-treated to prevent corrosion. Some suspicion arose as to the effect on oil of the surface-coatings applied in accordance with several proprietary rust-proofing processes. The results of investigation indicate that some of the surface coatings promote deterioration of certain oils and in some cases show inhibitive effects.

"Briefly, some coatings are deleterious and some oils are adversely affected. Generally speaking, however, the most extensively used oils show little or no deleterious effect caused by any of the more prominent rust-proofing processes.

(To Be Continued)

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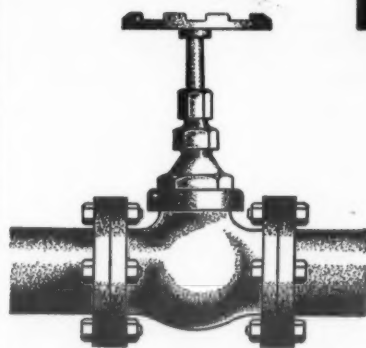
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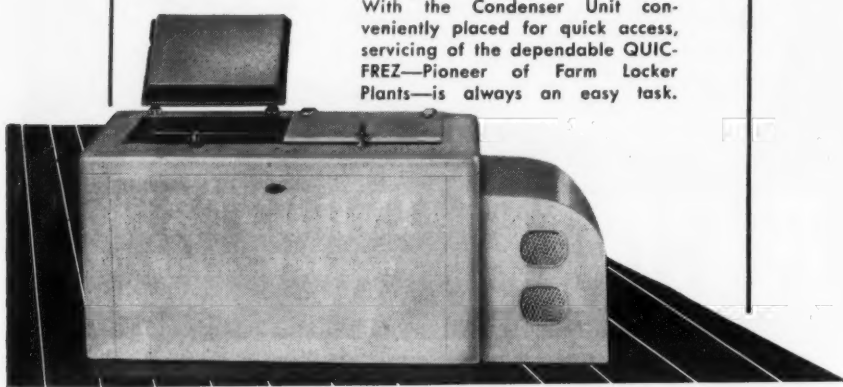


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Refrigeration Aids Market Fight 110° Heat

Meat, Dairy Depts. Get 38 Ft. of Display Cases

TUJUNGA, Calif. — Refrigerated display and storage cases have provided an answer to the 110° F. summer heat for one supermarket here.

In his battle against rapid food spoilage from the intense heat, Bob Rankin, owner and manager of Rankin's supermarket here, has installed 38 ft. of Tyler display cases for his meat and dairy products.

He has turned over a Tyler dairy case to the bakery department for its pies, cakes, and candies.

And he has provided the liquor department with both a Tyler dry beverage cooler with 30-case capacity and a Perfectcold reach-in refrigerator with glass doors for quart bottles of beer.

All the units were put in by Perfectcold Refrigeration Co. of Los Angeles.

W.L. Hauck Represents Weatherhead In East

CLEVELAND—William L. Hauck has been appointed eastern district sales manager of The Weatherhead Co., with headquarters at 4302 Lincoln building, 60 East 42nd St., N. Y. C.

Mr. Hauck was formerly sales manager of the Trageser Copper Works, Maspeth, L. I., N. Y., and district sales manager for The Scaife Co. in New York.



A clerk at Rankin's Supermarket in Tujunga, Calif. is shown helping a customer to some cold beer from a long Tyler dry beverage cooler. This cooler was one of several Tyler units installed in the store to protect food and beverages from the city's 110° F. summer heat.

NARC Proposes 16-Point Code of Ethics Founded on Fair Dealing for Fair Profit

CLEVELAND — Members of the National Association of Refrigeration Contractors are now being polled on a proposed code of ethics recently drafted by a special NARC committee.

The 16-point code was developed around the basic principle that "the foundation of business among competitors and with customers is confidence, based upon honesty, fair dealings, and efficient service; and the reward of such is a fair profit."

It was worked out by a committee composed of J. C. Ehlers, St. Paul, chairman; E. F. Flank, Cleveland; M. L. Jones, New Orleans; E. L. Moseley, Galveston; Theodore A. Reina, New York City; and Ed Tanner, San Francisco.

Text of the proposed code follows:

BUSINESS CONDUCT

1. Members of the association will constantly and voluntarily strive for higher standards, fair competition, and fair and honest dealings with the public.
2. All services shall be performed in a satisfactory, workmanlike manner. There shall be no misrepresentation to a customer of materials bid, used or sold, or of services performed or to be performed.
3. Equipment sold and installed, as well as service work, shall be such as to assure adequacy, durability, efficiency, safety, and satisfaction in its use.
4. No guarantees beyond the regular warranty period will be offered or given on equipment or accessories, but full protection is assured during the proper period. The usual guarantee on service is permissible.
5. On used equipment, there shall

be no misrepresentation on the amount of reconditioning done or new parts used. The sales slip shall show what was done.

6. Members agree to abide by all laws, rules, regulations, codes, and ordinances relating to the refrigeration business and all laws for the regulation and preservation of competition.

7. Only competent mechanics will be used on every job.

8. Accurate cost records shall be kept so that goods and services will be priced intelligently.

9. Members agree not to give, or offer to give, secret rebates, premiums, special discounts, or other allowances or services where the effect is to unfairly divert trade or otherwise to injure a competitor.

10. Salesmen or agents shall not share any bonus or commission with a customer or his agent.

11. Advertising and promotional material shall be clear, specific, and truthful.

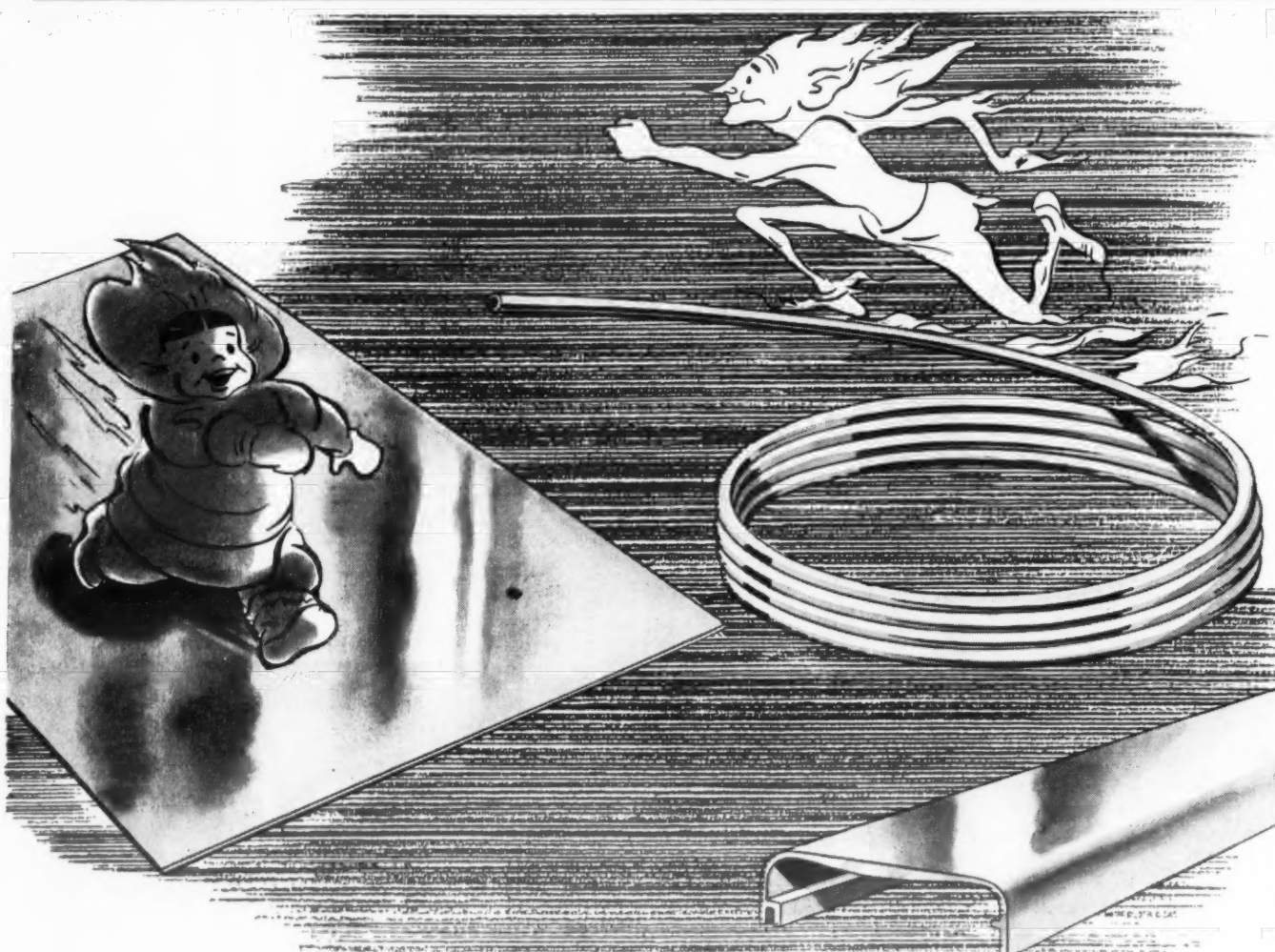
12. No order shall be accepted from a salesman employed by another contractor or dealer.

13. No attempt shall be made to break down a sale or secure a contract from a customer who has definitely placed an order, or who has a contract with another firm.

14. No derogatory remarks shall be made about competitors, their services, or their equipment.

15. Before hiring an employee of a competitor, the latter shall be consulted.

16. Places of business shall be kept clean, orderly, and well lighted, to enhance the prestige of refrigeration contracting.



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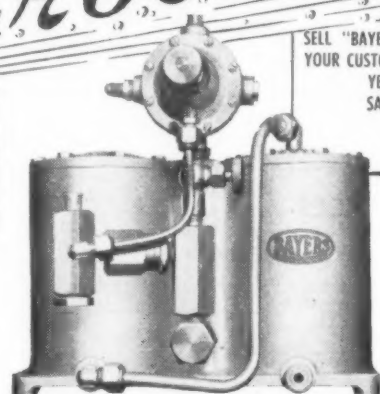
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DENVER, COLO. • ALpine 5555

Power Customers --

(Concluded from Page 1, Column 2)

biggest increase in new customers for the year ended June 30 over the preceding year, it was revealed. Other increases were announced as follows: East south central states, 8%; south Atlantic, 7.6%; mountain, 7.5%; and New England, 5.6%.

These other developments were also disclosed by Mr. Oakes:

Electrical companies have added 3,545,000 customers of all types in the 22 months from V-J Day to the end of June.

Of the new customers obtained during the first half of 1947, 929,000 were urban and rural residential consumers and the rest were industrial and other users.

In the first four months of 1947, new electrical connections of all types were added at the rate of 164,000 a month. Those added in May totaled 228,000, a new record for a single month. The figure for June was 220,000.

A total of 275,123 new small customers (stores, garages, filling stations, and small industrial users) was added to power lines during the year ended June 30, 1947. This was an increase of 6%, and raised the total number of such customers to 4,848,000.

By rising from a country-wide average of 1,290 kilowatt hours per domestic customer for the year ended June 30, 1946, to an average of 1,385 kilowatt hours for the year ended June 30, 1947, the amount of electricity devoted to household purposes set a new high.

However, Mr. Oakes said, revenues per kilowatt hour in the same period dropped. He attributed this primarily to the fact that increased consumption brought many residential users into the lower rate brackets.

Average revenue for electricity sold in the year ended June 30, 1947, was said to have been 3.14 cents per kilowatt hour, compared with 3.31 cents in the previous year.

REA Is Adding 22,000 New Customers Monthly

WASHINGTON, D. C.—Although new customers are being added to REA-financed networks at a record rate of about 22,000 monthly or 264,000 yearly, it will take at least 20 years to provide electric power for all rural residents who want it, according to the Department of Agriculture.

The agency said an estimated 2,500,000 farms and an equal number of other potential rural consumers do not have electric service. It listed the following states and the number of their farms without electricity:

Mississippi, 188,481; Texas, 172,469; Tennessee, 146,944; North Carolina, 146,175; Kentucky, 143,930; Missouri, 134,148; and Arkansas, 130,211.

At the other extreme are Rhode Island, with only 295 non-electrified farms, and Connecticut, with 990. Seven other states, most of them in New England, have less than 5,000 farms without power.

REA loans approved during the 1947 fiscal year ended last June 30 will permit electrification to be extended to an estimated 396,000 rural users, the department said.

Some Units Not Okay --

(Concluded from Page 1, Column 4)

jurisdiction.

"During the war many new companies were organized to produce war materials, and as the war ended they turned to the manufacture of other equipment," he continues. "Often they were not completely familiar with the safety requirements in some of these fields, such as refrigeration and air conditioning."

"One compressor manufacturer, for example, had obtained approval of the Underwriter Laboratories for its motor and wiring but had neglected to obtain their approval for the condensing units as a whole," said Mr. Rehard.

"We are not permitted to approve the installation of such equipment. Theoretically, of course, we could go out to the job, make a thorough inspection, and satisfy ourselves as to whether the equipment meets safety requirements."

"But we don't have the equipment, the manpower, or the time to do this," he explained.

This condition is not limited to Detroit, for many cities have the same or similar requirements, pointed out Mr. Rehard.

Producers' Inventories Up Slightly In July

WASHINGTON, D. C.—A \$100,000,000 increase in manufacturers' inventories during July, the smallest increase recorded in more than a year, was reported by the U. S. Department of Commerce recently.

This whole increase was made in the durable goods industries, the department noted. Inventories in this category now total \$11,900,000,000, more than half of the \$22,700,000,000 accumulated by all manufacturers.

A decline of \$500,000,000 in manufacturers' sales for the month was attributed in part by the department to vacation closings. Daily average rate of sales for July were 8% below the rate for June, it noted.

New I.C.C. Changes Do Not Affect Refrigerants

WASHINGTON, D. C.—Recent changes in the regulations covering the transportation of refrigerants as issued by the Interstate Commerce Commission do not alter the present practices followed by the industry.

One new ruling permits the manifolding of cylinders in transport if individual shutoff valves are provided for each cylinder and manifold lines to these valves are sufficiently flexible to prevent injury. This applies to "Freon-12," ethane, methane, methyl chloride, and sulphur dioxide.

The refrigeration industry, however, has never followed the practice of manifolding cylinders in transportation.

Another ruling establishes the maximum filling density of "Freon-12" cylinders as 1.19, but this has been common practice for some time.

K & K Opens In Buffalo

BUFFALO—A business name has been filed in the county clerk's office for the K&K Refrigeration Service & Repair, 30 Laux St., by Julian V. Kotarski.



BULLETIN!

AIR CONDITIONING & REFRIGERATION NEWS announces the first subscription rate change in over ten years. Effective October 1, 1947, the basic subscription rates will be as follows:

1 year	.....\$5.00
2 years	.....\$8.00
3 years	.....\$11.00

Foreign postage \$2.00 per year extra: includes all except Pan-American Postal Union countries, Canada, and U. S. Possessions.

You are invited to enter your new or renewal subscription order now if you want to save an extra dollar.

New special group rates will be:

1 to 4 one year subscriptions	.....\$5.00 each
5 to 9 " " " "	.....\$4.00 " "
10 to 19 " " " "	.....\$3.50 " "
20 to 49 " " " "	.....\$3.00 " "
50 or more " " " "\$2.50 " "

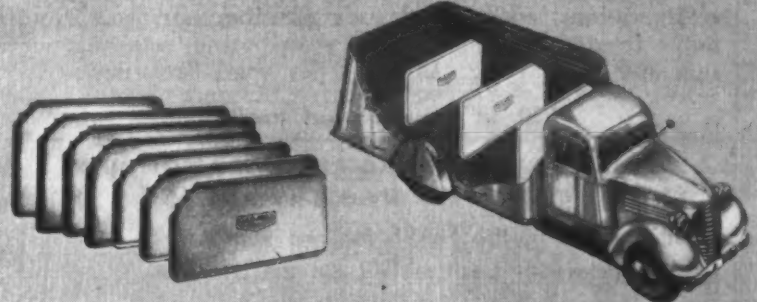
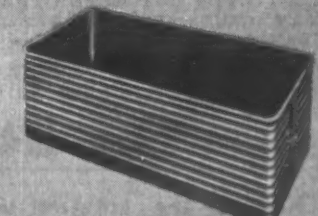
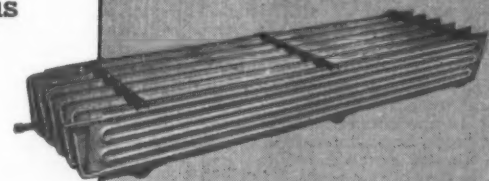
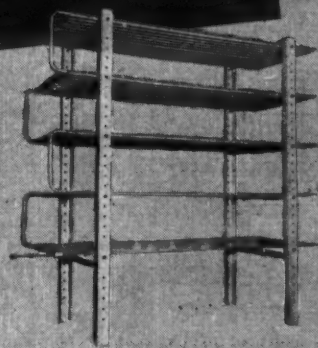
AIR CONDITIONING & REFRIGERATION NEWS, 450 W. FORT ST., DETROIT 26, MICH.

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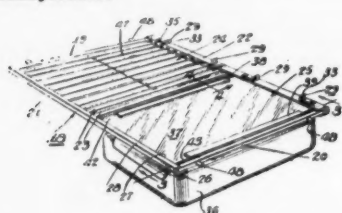


LARKIN COILS 519 MEMORIAL DRIVE • S.E. ATLANTA • GEORGIA

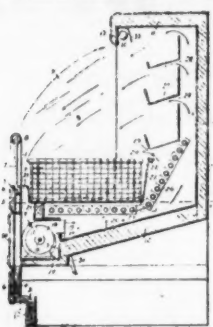
PATENTS

Week of May 27

2,421,089. **REFRIGERATOR SHELF.** Helen E. Smith, Philadelphia, Pa., assignor, by mesne assignments, to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania.

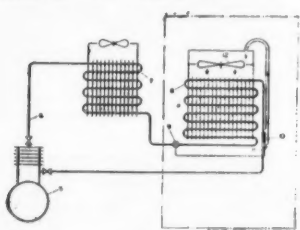


1. In a refrigerated display case of the class described, insulated bottom, side, back and front walls, the back and side walls extending a substantial distance above the front wall and the bottom wall inclining rearwardly-upwardly from the



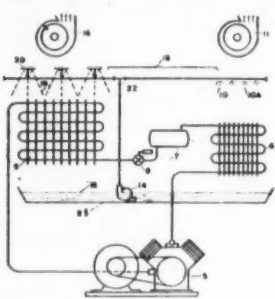
2. A shelf structure including a unitary frame, said frame comprising side rod portions and front and rear opposed channel portions and having a plurality of substantially rectangular shelf areas, shelf sections releasably and interchangeably mounted in the frame within said areas and each having opposite edges seated within said channel portions, and means associated with said channel portions for releasably holding said shelf areas against accidental displacement from the frame, said means comprising a plurality of resiliently pressed retractable pins having an operative position at one of the side edges of the respective shelf sections when said sections are seated within said channels.

2,421,258. **CONTROL ARRANGEMENT FOR REFRIGERATION APPARATUS.** Merrill B. Goddard, Chicago, Ill., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware.



1. The combination of, a coil section, a casing for said coil section, means including a superheat control expansion valve for admitting refrigerant to the coil section, a suction line connecting the coil section to a compressor, a thermal bulb affixed to and in thermal contact with said suction line, said bulb being operatively connected to said valve to cause said valve to function responsive to heat affecting the bulb, a conduit surrounding the bulb, a conditioned space, a fan section positioned adjacent the coil section, means connecting said conduit to the fan section in such manner that air from the conditioned space will actively be circulated through said conduit, over the bulb and into the fan section.

2,421,293. **DEFROSTING METHOD AND APPARATUS.** Sam F. Shawhan, Syracuse, N. Y., assignor to Carrier Corp., Syracuse.



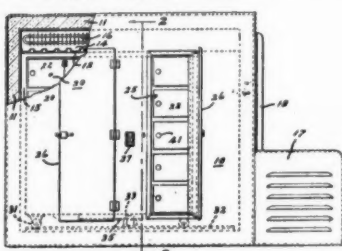
1. A method of expediting the removal of accumulations of frost from evaporator surfaces consisting in circulating water in the form of spray over the surfaces during a defrosting operation, simultaneously supplying water in the form of spray into an air stream having a higher temperature than that of the water and melted frost leaving the evaporator, mixing the water from both operations, and then supplying the mixed water in part to the evaporator and in part to the air stream in a repetition of said steps until defrosting is accomplished, and finally cutting off the water fed to the evaporator surfaces.

2,421,314. **OPEN TOP REFRIGERATED DISPLAY CASE.** Paul H. Brinkoeter, San Antonio, Tex., assignor to Ed. Friedrich, Inc., San Antonio, Tex.

front wall; a canopy extending forwardly from the upper end of said back wall a distance substantially less than the depth of the cabinet between said front and back walls to leave an opening between said front wall and the front of the canopy; food shelves having rear walls spaced from said back wall and spaced one above another to provide air circulating passages; a pan located above but adjacent the fore part of said bottom wall; a heat-exchange unit beneath and in close proximity to said pan.

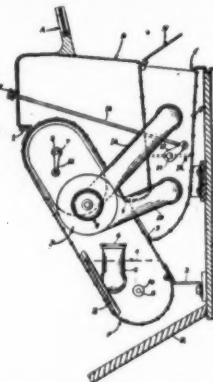
Week of June 3

2,421,439. **REFRIGERATED CABINET WITH SELECTIVE ACCESS.** Jasper A. Smith, Oakwood, Ohio, assignor to General Motors Corp., Dayton, Ohio.



1. A refrigerating apparatus comprising a cabinet including a plurality of insulated walls forming a chamber therein, a refrigerating system associated with said cabinet including means for cooling said chamber, a movable unit within said chamber comprising a plurality of integral tiers of lockers forming horizontal rows thereof, the front of said cabinet having an opening therein, a door for the opening in said cabinet front, the number of tiers of lockers in said chamber being one less than that to fill the horizontal rows of lockers whereby said unit is spaced from an end wall of said chamber a distance substantially equal to the width of a tier of lockers.

2,421,557. **HYDRO-VAPOUR AIR CONDITIONER.** George Hanquet, Glendale, Calif.



1. A hydro-vapor air conditioner comprising a casing adapted to hold a fluid in the lower portion thereof, an endless fabric, means for causing the fabric to follow the contour of the inner surface of the casing so that it will extend into the fluid, said casing having an air inlet and air outlets, the air outlets being disposed adjacent to a portion of the fabric, and means for moving the fabric so that a wet portion saturated by the fluid in the casing can be moved opposite the air outlets so that the air passing through the outlets will pick up moisture from the fluid impregnated fabric, this air being cooled by the evaporation of the moisture picked up, an air conduit leading from a cowl inlet of an automobile and extending to the air inlet of the casing, said cowl inlet being provided with a cover which when opened will direct air into the conduit, a butterfly-valve mounted in the air conduit and manually swingable from open to closed position,

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RATES for all other classifications \$5.00 per insertion. Limit 50 words.
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POSITIONS WANTED

REFRIGERATION AND AIR CONDITIONING engineer. 20 years experience designing, erecting, service management and selling, desires position with established firm in southern, central or western states. Straight salary or commission and salary. Present salary \$6,000 per year. Address: ENGINEER, BOX 325, Coccol, Canal Zone.

PARTS MANAGER. experience fifteen years General Motors Corporation. Frigidaire knowledge material control, receiving, shipping and relative matters, familiar service department dealer set-up. Also handle all correspondence. Employed at present. Can furnish excellent references. BOX 2434 Air Conditioning & Refrigeration News.

SALES OR service position desired with manufacturer, distributor or supply house. 20 years experience domestic, commercial and industrial sales and service. Have thorough practical knowledge of high and low pressure systems. Can make investment. Prefer Midwest or Pacific Northwest location. BOX 2482 Air Conditioning & Refrigeration News.

SERVICE ENGINEER—20 years experience in sales, service and installations. Domestic commercial and industrial refrigeration, air conditioning. 42 years old, hold private pilot's license. I.C.S. Refrigeration graduate 10 years ago. Making permanent change because of wife's health. Prefer central or South East Florida. Best reference. BOX 2489 Air Conditioning & Refrigeration News.

APPLICATION ENGINEER—15 years experience in air conditioning, refrigeration and heating. Application, design of systems and equipment. Lab layout and test. Service, supervisory and managing capacities. Desires opening with manufacturing or large contractor. College graduate. 35 years. BOX 2490 Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

APPLICATION—ENGINEER wanted. College graduate having knowledge of refrigeration and air conditioning principles. Experience desirable, but will consider trainee. Reply in own handwriting giving full details of experience, education, and salary desired. Address reply to ACME INDUSTRIES, INC., 618 N. Mechanic Street, Jackson, Michigan, Attention Personnel Manager.

SERVICE MAN: 30 to 40 years, at least 8 years experience commercial and domestic service and installation. Guaranteed 44 hours weekly, all overtime you wish. Write giving qualifications, references, and hourly rate desired. J. A. Canavan, REFRIGERATION SALES AND SERVICE, 465 St. Paul St., Burlington, Vermont.

SALES MANAGER—Los Angeles distributor for leading line of self-contained air conditioning units and central plants has attractive opening for experienced sales manager of proven ability to handle air conditioning division. Give full particulars when answering. HUGH ROBINSON & SONS, P. O. Box 152, Vernon Station, Los Angeles 11, California.

AIR CONDITIONING and refrigeration service mechanics wanted for "year round" work—must be experienced in servicing Chrysler Airtemp equipment. Two dollars and fifteen cents per hour. SMITH & LOWMAN, INC., 13 Garfield Place, Cincinnati 2, Ohio. Phone Ma. 5698.

SALESMEN: CALLING on refrigeration service shops can add substantially to their income by selling Taylor beer control systems. We train you, supply catalogs and national advertising. Commission basis. TAYLOR PRECISION MFG. CO., 1299 Parsons Ct., Rocky River 16, Ohio.

SERVICE-INSTALLATION engineer. 25 to 35 years; minimum 5 years' experience Air Conditioning & Refrigeration installations, 5 to 60 tons. Full responsibility service and installation assured department of General Electric Distributors, Republic of Panama. Wonderful future for right man in long established concern. Enclose picture. BOX 2456 Air Conditioning & Refrigeration News.

SALES ENGINEER—college graduate must have complete knowledge and experience in air conditioning and refrigeration. Experience must include actual installation, estimate, and sales. Written applications giving full details as to experience, age, salary, etc. BOX 2459 Air Conditioning & Refrigeration News.

FACTORY REQUIRES salesmen and factory representatives, who will sell nationally advertised quality line commercial refrigeration to dealers throughout the United States. Preferably on a commission basis. Shipment can be made at once. No inventory required. Write full particulars. BOX 2470 Air Conditioning & Refrigeration News.

DEVELOPMENT ENGINEER—nationally known manufacturer has an opening for a man to do special development work on major electrical appliances. Must have engineering degree, proven ability in developing utility features in home appliances and some experience on refrigerator cabinet design. Write stating full qualifications. BOX 2477 Air Conditioning & Refrigeration News.

WANTED—SALESMAN for finned tubing, high and low fin for Eastern states and Middle West. State qualifications and experience in refrigeration and air conditioning field. BOX 2486 Air Conditioning & Refrigeration News.

SALES ENGINEER—College graduate. Must have license. Mechanical or refrigeration engineer. Experienced in ammonia—"Freon" air conditioning and refrigeration. Northwestern Pennsylvania territory. BOX 2492 Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER—minimum 5 years practical experience, refrigeration design and coil application on commercial refrigerators. Capable taking charge servicing and installations on commercial refrigerators. Opportunity with progressive, growing manufacturer commercial refrigerators, Philadelphia. Permanent position, advancements based on ability. State education, employment record, age, salary desired. BOX 2493 Air Conditioning & Refrigeration News.

WANTED—PRODUCTION engineer experienced on refrigerated cabinets. Must have practical experience in sheet metal production, design, welding, assembling, and finishing. New factory central states. Advise experience and salary expected. BOX 2494 Air Conditioning & Refrigeration News.

SALES ENGINEER wanted by manufacturer of air conditioning and refrigeration accessories, to cover Ohio territory. Call on jobbers and manufacturers. Extensive travel and car required. Compensation includes salary, commission, expenses, profit sharing, insurance pension plan. Dayton or Cleveland resident preferred. Our men know of this advertisement. BOX 2495 Air Conditioning & Refrigeration News.

JUNIOR SALESMAN, to represent rapidly expanding mid-west manufacturer. Must be graduate engineer. Prefer single man with commercial refrigeration experience. Position offers excellent future. Give full particulars in reply. BOX 2496 Air Conditioning & Refrigeration News.

SALES ENGINEER—Air conditioning or refrigeration—for sunny Southern California. This is an opportunity for man of proven ability and experience in this fast growing industrial area where there is no "off season" in air conditioning or refrigeration. BOX 2498 Air Conditioning & Refrigeration News.

WANTED IMMEDIATELY by New York City Export Division of large refrigeration and air conditioning equipment manufacturers for drawing room. 1 squad leader, 2 senior draftsmen, experienced only. State experience, age, salary, marital status. BOX 2499 Air Conditioning & Refrigeration News.

IF YOU are an experienced and aggressive refrigeration supply salesman, an opportunity exists for you in Florida. Not a soft job but one affording competent man a very satisfactory income. Give all details including experience, references and reason for changing employment in first letter. BOX 2500 Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

MOTORS AND condensing units—available at once—1/4-1/2-3/4-1 HP Universal condensing units with or without motors. Special—six hole ice-cream cabinets with 1/4 hp. Copeland units less motors \$225. Also beverage coolers, beer equipment, stainless steel reach-in freezers. ALBROD CORP., 319 West 48th St., New York City 19, CI 6-9100.

460 DETROIT 894-AF15 THERMOSTATIC expansion valves, 1/2 ton, "Freon," 1/4" inlet, 1/2" outlet, 5' capillary, 15# maximum pressure—\$3.20 each. 500 White-Rodgers thermostats, 1700 series, 5' capillary, -20° and to +50° range—\$3.30 each. Lots, 50 or more, FOB Brooklyn. AMERICAN-MONINGER GREENHOUSE MFG. CORP., 1820 Flushing Avenue, Brooklyn, N. Y.

FOR SALE: Westinghouse standard CLS compressor, new, 220 v. 3 ph., 60 cy., 50% capacity reduction with 11-200 line-starters. 10 HP—\$995.00. 15 HP—\$1290.00, plus condensers. 10 HP—\$1150.00. 15 HP \$1460.00. 1-25 HP 230 v D.C. Westinghouse compressor assembly \$1800.00. Prices net FOB Boston. CARRIER-MADELL, INC., 177 State Street, Boston, Mass.

WALK-IN COOLER—new—9' x 12' overall x 7'6" high. 620 cu. ft.—all steel. 5 1/2" walls—glass wool insulation—complete with floor racks, interior lighting. Massive hardware, padlocks. Designed for temperatures 0° to 40° F. Built for Navy under rigid specifications. Attractively priced—in original crates. W. J. CONNERS, 540 North Lake Shore, Chicago 11, Illinois.

REFRIGERATION SYSTEMS—new gasoline driven 10 HP Continental water-cooled engines—Universal compressor model N—Air cooled condenser and booster coil—water-type defrosting apparatus. Operates satisfactorily when electrified with 5 HP 3 phase motor. Priced \$450.00 each. FOB Chicago—weight 3600#. In original crates. W. J. CONNERS, 540 North Lake Shore, Chicago 11, Illinois.

IMMEDIATE DELIVERY contractors, dealers only. Horizontal and vertical weathermakers, 2 to 25 tons complete. SWSI, DWDI and twin blowers, propeller fans, all type heating & cooling coils, evaporative condensers, self-contained air conditioners, condensing units, steam fired unit heaters, gas fired furnaces. CONTROLTEMP CORP., 236 Butler Street, Brooklyn 17, N. Y.

FOR SALE—AC motors 1/2 to 3 hp. single and 3 phase, list price. Immediate delivery. EDISON COOLING CORP., 310 E. 149th St., Bronx 51, N. Y.

COMPRESSORS, CONDENSING units, new 40 HP Airtemp 7-H less condenser \$1500. Trane unit water cooled complete 10 HP. \$950. 7 1/2 HP \$850. 5 HP \$550. Universal water 3 HP \$450. 2 HP \$310. 1 1/2 HP single phase air cooled \$310. New high torque motors 15 HP Century \$190. 10 P Electro \$165. 15 HP starters \$28. E. M. FAIRBANKS, 145-03 7th Avenue, Whitestone, L.I.N.Y. FLushing 3-8810.

30-1/2 HP USED Tecumseh condensing units complete with motors 110-220 single phase. Like new. \$47.50 each FOB Philadelphia. 1/2 ton Chrysler packaged air conditioner 2 phase complete \$850. 1-5 Nevinger packaged air conditioner with Servel condensing unit. \$1000. FRIGID FREEZE SALES CORP., 3626 Walnut Street, Philadelphia, Pa.

QUALITY BOBTAIL fountains; reach-ins, walk-in boxes—wood, metal; dough retarders; double duty cases—stainless steel, porcelain; dairy, florist, bakery cases; ice cream hardening cabinets; thermopane frozen food cases; milk, sandwich coolers; stainless steel back bars; with machines. Equipment made to special order. FRIGITEMP CORP., 931 Bergen St., Brooklyn 16. MA 2-9093.

5-TON CARRIER Air-Conditioner complete with evaporative condenser and valves. Brand new in crate. At dealer's price. Write GENERAL RADIO & SUPPLY COMPANY, 132 West Main Street, Belleville, Illinois or phone Belleville 839.

NEW JACK & HEINTZ refrigeration motors. 1/4 HP \$24.00 each, quantities 1 to 5, \$22.80 each, quantities 6 to 11, \$21.60 each, quantities 12 or more. 1/2 HP \$29.50 each, quantities 1 to 5, \$28.05 each, quantities 6 to 11, \$26.55 each, quantities 12 or more. GENERAL REFRIGERATOR COMPANY, 856 N. Broad Street, Philadelphia, Pa.

SACRIFICING FOR wholesale cost established commercial refrigeration, store fixture business, principally a sales organization, holding valuable franchises both commercial refrigeration equipment, store fixtures. Sale also including most popular appliance franchise in town having unlimited possibilities. \$10,000 down payment, balance can be financed on suitable terms. Located Indiana, little competition. BOX 2502 Air Conditioning & Refrigeration News.

FOR SALE in original crates: One section Nesbitt coils type DS-278-5-18; three section Nesbitt coils type DS-178-19-96; three section Nesbitt coils type DS-178-19-102; three section Nesbitt coils type WD-8D-38-28-96 H. three section Nesbitt coils type WD-8D-38-28-102 RH. HUBBARD-LANGE & HECK, INC., Grand Central Terminal, New York 17, N. Y.

EVAPORATIVE COOLERS. USAIRCO model G 10041, 10000 GFM. 2 units complete with fan, spray, mats, motor, housing, etc. Brand new. Price \$400.00, net FOB New York City. KOOLERAIR CONDITIONING COMPANY, 55 W. 42nd Street, New York 18, N. Y.

WALK-IN COOLERS, sectional. Kildried fir throughout. 4 in. fibre glass, natural finish. \$35 per sq. ft. Beer coolers. \$85 per sq. ft. Cooler and freezer doors as low as \$36.50. No extra charge for special sizes. Florist boxes. Wholesale only. MIDWEST MANUFACTURING CO., 101 Glenwood, Minneapolis 2, Minn.

1000 MOTORS, FOR sale, from stock 1/4 hp.—3425 RPM—3 ph/230 V. (Under-rated—easily equal to 1/2 hp.) Ballbearing, for vertical or horizontal. Enclosed Fr. 1/4 in. shaft. \$30 each. This rugged motor cannot burn out. (Glass insulated wire coils.) MODERN SUPPLY CO., 306 Fulton St., New York 7—CO 7-0100.

HIGH SIDE float replacements. Westinghouse 4 hole mounting—Part #2000 Westinghouse 3 hole mounting—Part #2010 Gibson Part #2020. General Electric (DR-1 & DR-2)—Part #2030. General replacement—Part #2040. \$4.75 each. Write for sealed unit parts bulletin #14. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

SEALED CROSLLEY TERMINALS. Installed from the outside in a few minutes without opening the compressor. Corrects leaky terminals on all Crosley "F-17" units. Set of three \$5.25 (Part No. 1020). Installation tool \$20. Immediate delivery. Money-back guarantee. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

DISCONTINUING OUR present stock we have a quantity of Marlo coils, standard and low temperature coils, as well as various two, three and five HP units. Closing out at attractive prices. SOUTHERN ELECTRIC APPLIANCE CORPORATION, 800 St. Charles Avenue, New Orleans 13, Louisiana.

MOTORS, SECTIONAL coolers. Condensing units, 40 cu. ft. reach-in freezers. York compressor bodies, many other items. \$10,000 inventory must be liquidated at less than pre-war costs. Send for bargain list. WASHINGTON SALES CO., 458 W. Gilman Street, Madison 1, Wisconsin.

1/2 HP UNITS complete with motor. \$98.50. Other models from 1/4 HP to 1 HP at new low prices. All units supplied with motors. Send for catalog 742A. BOX 2405 Air Conditioning & Refrigeration News.

CAPILLARY TUBE overstock. Up to 7500 lbs. .050 ID x .032 wall plus or minus .002. Soft temper copper capillary tubing. Random coils 50 to 100 ft. Sealed ends. BOX 2487 Air Conditioning & Refrigeration News.

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WE ARE manufacturers distributors in three Southeastern states, and desire to add to our program an outstanding washing machine, electric range, and small household refrigerator. Any manufacturer interested in such a distributorship please advise. CARLTON STUART COMPANY, 115 1/2 Whitehall Street, Atlanta, Georgia.

BUSINESS OPPORTUNITIES

FOR SALE: Twenty-five years established business in Florida for store and meat market equipment, best lines of commercial refrigerators. Stock about \$75,000, doing more than \$250,000 a year, profit over \$30,000 a year. 125 feet front with 8,000 square feet of floor space. Will sell at invoice price. Want to retire. BOX 2468 Air Conditioning & Refrigeration News.

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Refrigeration Problems And Their Solution

By P. B. Reed

For Service and Installation Engineers



Manager, Refrigeration
and Air Conditioning
Division, Perfex Corp.

Care and Recording of Service Supplies (2)

'DEAD STOCK' SHOULD BE WRITTEN-OFF

Many replacement parts not only move slowly, but may never be used. For a short time there may be a "run" on some part. Perhaps a certain model of machine had a faulty design of some one part. For quite awhile the replacement of that part is heavy.

Finally all of the machines of this model, owned by customers of the service contractor, have had the part replaced and no further trouble is experienced. In the meantime the contractors stock of this part has been built up because of the heavy demand. After all have been replaced, the demand falls to almost nothing, so the contractor is stuck with this dead stock.

It is something that he must watch and prevent if he can. Sometimes it is almost impossible to anticipate the demand, but he plays safe so as to render prompt service, by stocking the part heavily.

But if he cannot prevent this dead inventory, he can at least recognize it as dead and not carry it on his books as salable merchandise. He should "write off" such parts as they become obsolete, damaged, unusable, or otherwise dead. He should go over his stock at least once a year and decide which is dead stock and which is salable.

Writing-off the dead stock keeps his inventory clean and all of it live and salable and an asset. Moreover, he can write it off as an expense of doing business and thus reduce his taxable income.

Stock can become not only obsolete but it can become "shelf worn" and so badly damaged as to be unusable, or if used, cause trouble and require additional labor for replacement—

labor that often cannot be billed to the customer.

Parts should be kept properly protected. If unwrapped, they may become nicked, scratched, cracked, or otherwise physically marred and made unfit for use. They should be left in the original cartons or wrappings and carefully stacked and not thrown around in bins.

Parts must be protected from dust and dirt. Again the original cartons or wrappings will usually do this. If the parts are small and are not wrapped they may be kept safely and well protected, even unwrapped in some cases, by putting them in glass jars with screw tops. The jars can be placed on shelves or the tops nailed to the underside of shelves or bins and the jars screwed into and supported by the tops.

CORROSIVE VAPORS IN THE AIR

Many parts will rust or corrode merely from being exposed to the air, especially in moist climates or in locations near factories, smelters or other establishments giving off noxious fumes (canneries are often bad offenders).

Many parts have machined and finished surfaces that rust very easily. Finely finished surfaces such as valve plate seats, seal rings, piston pins, valve reeds or discs, crankshafts and similar parts must be better protected than simply by wrapping, or a carton or even a jar.

These surfaces must be kept covered with a heavy grease or other preparation to keep them from rusting. Not just any oil or grease will do either. Some of these are not well refined and have left in them sulphur or other agents that attack finely finished surfaces.

The manufacturer of the part usually protects it with a grease or other moisture-resistant preparation, and this should not be disturbed until the part is about to be used. Then it should be wiped off, or in case of some parts it must be washed off in gasoline, naphtha, or whatever

the manufacturer of the part specified. His instructions will usually be found on the carton or on an enclosed slip.

Adequate provision for storage of parts, fittings, and other supplies, care in handling them and enforced instruction to his men may save an employer many dollars annually.

Loss of refrigerant in stock is an item that can amount to several hundred dollars a year. It is common practice to keep one or more cylinders of the most commonly used refrigerants inverted in a rack for the purpose of refilling small service cylinders. Often the valve on the big cylinder is simply closed, sometimes not very tightly, and not capped.

As a rule these valves are not perfectly tight and during the hours and days that the cylinder stands inverted with the valve outlet uncapped, a very considerable amount of refrigerant is lost. The servicemen should always cap the valve outlet after the small cylinder has been filled.

If loss of refrigerant from the large cylinders is suspected, a tag should be attached to the cylinder and

all withdrawals of refrigerant from it posted. When the cylinder is emptied it can be determined how much of the refrigerant can be accounted for.

SPECIFY...

DRYERS
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✓ CHECK WITH Ranco FIRST

Specialists in Refrigeration	Less Stock to Carry
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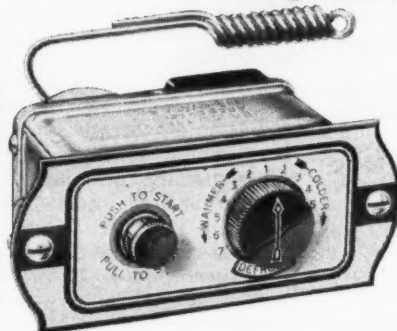
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COLUMBUS 1, OHIO



World's Largest Manufacturers of REFRIGERATION CONTROLS

Designed for Dependability



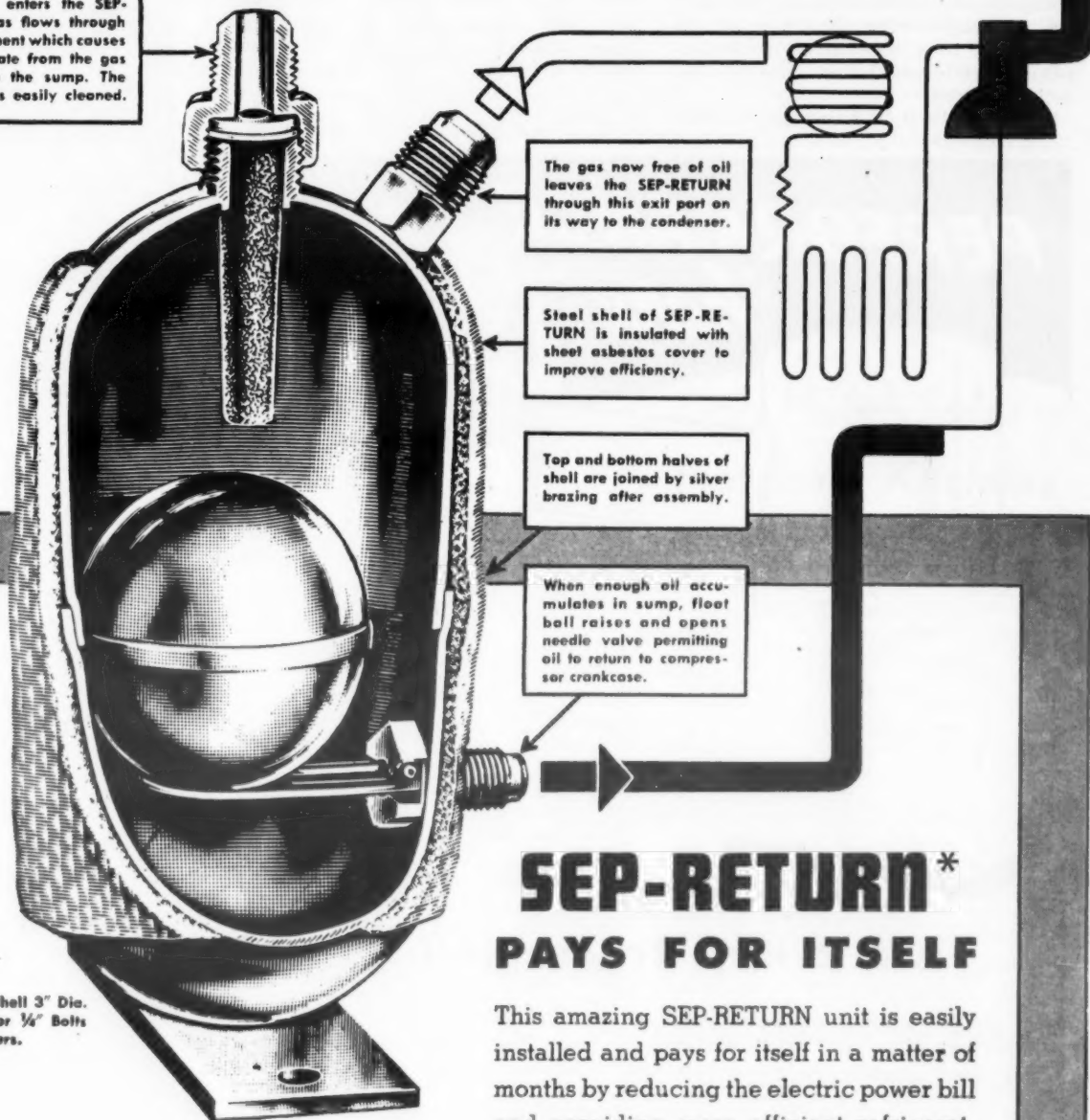
Through years of specialized refrigeration experience, Ranco Inc. has simplified the design of its refrigeration controls—and has likewise simplified the refrigeration service man's problems by producing refrigeration controls designed for dependability and built for long-life, trouble-free service.

LOWEST PRICE ON THE MARKET

SEP-RETURN

AUTOMATIC OIL SEPARATOR AND RETURN

Oil-laden hot refrigerant gas from the compressor enters the SEP-RETURN. The gas flows through the Poronze element which causes the oil to separate from the gas and trickle into the sump. The filter-separator is easily cleaned.



The gas now free of oil leaves the SEP-RETURN through this exit port on its way to the condenser.

Steel shell of SEP-RETURN is insulated with sheet asbestos cover to improve efficiency.

Top and bottom halves of shell are joined by silver brazing after assembly.

When enough oil accumulates in sump, float ball raises and opens needle valve permitting oil to return to compressor crankcase.

SEP-RETURN* PAYS FOR ITSELF

This amazing SEP-RETURN unit is easily installed and pays for itself in a matter of months by reducing the electric power bill and providing more efficient refrigerating. On new jobs the SEP-RETURN makes it possible to use smaller compressors.

IT SAVES MONEY—IT MAKES FRIENDS

Inlet and Outlet 3/4" SAE. Oil Return 1/4" SAE.
For Use on Systems Up to one-third H.P.

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Standard Compressor For Armed Forces - -

(Concluded from Page 1, Column 3) master Corps, at least, were of all available makes, with the product of each manufacturer differing from that of other producers, thus making the procurement and supply program of spare parts very difficult.

To eliminate this and to facilitate the manufacture of a "standard" compressor, Milliard outlines the following requirements for such a unit:

- (1) Extreme light weight for airborne operations
- (2) High speed (approximately 3,000-3,600 r.p.m.) for direct drive by internal combustion gasoline engines
- (3) Maximum interchangeability of parts
- (4) Minimum basic castings, within a range of $\frac{1}{2}$ to 5 hp.—with consideration being given to extending this range to a maximum of perhaps 75 hp., to cover the requirements of the Navy and Maritime Commission.
- (5) Production by standard, rather than special duty, machines. This to enable manufacture by the maximum percentage of the refrigeration industry.
- (6) Operation of driving engine under ambient conditions from -70° F. to 130° F., and operation of the evaporator in 0° F. refrigerators
- (7) Maximum length of operation without maintenance
- (8) Operation and maintenance with no special tools
- (9) Operation with refrigerants normally used in the field ("Freon-12")
- (10) Corrosion resistance in all critical functioning parts
- (11) Ability to function under severe vibration or when tilted at any angle up to 30° from vertical.
- (12) Minimum weight and complexity of components
- (13) Maximum ruggedness and reliability in all components
- (14) Components so proportioned and selected as to provide for a balanced whole.

The program would call for inspection of both current and future models in the plants of a number of compressor manufacturers, followed by an engineering analysis to be presented to a committee representing the interested branches of the armed forces.

It would then be the responsibility

of this committee to select either one or more lines of compressors that will fit the military characteristics mentioned above, and with the later help of the Industrial Advisory Committee, to make such changes as seem indicated to permit the manufacture of these selected compressors by the maximum part of the refrigeration industry.

After the initial selection and later redesign work on the compressors by the committees, work would be started on the selection of the components, such as condensers, piping, controls, and evaporators. In the case of field use these components would form a "plug-in" unit so that in case of failure of any component the entire assembly could be removed and be replaced as a unit. In the case of some other Services this would not necessarily be the case, and so the arrangement of the basic components would be different and in accordance with their needs.

In order to absorb the initial expense of indexing jigs and fixtures, procurement of all cooperating agencies should be lumped and enough units bought on the new basis to spread out the cost over as many units as possible. Service and field testing would be next, and, following these tests, joint specifications would be written for ultimate procurement.

Wholesale Inventories Show First Decline In 2 Years

WASHINGTON, D. C.—For the first time since July, 1945 wholesale inventories have registered a decline, preliminary reports from the Bureau of Census indicate.

The reports, based on slightly less than 2,000 wholesalers, show inventories to be 1% smaller in July than in June. This culminates a leveling off trend noted by the Census Bureau early this year. The bureau reported a 1% increase in April, no change in May, and a 1% increase in June.

Wholesale sales in July, on the other hand, were up 2% over June and 19% higher than in July last year. Dollar volume for the first seven months of 1947 were 24% higher than for the comparable period in 1946.

Sale of Air Cooling Units In North Dakota Offers Special Problems

FARGO, N. D.—Selling air conditioning in the northern section of the midwest, such as North Dakota and Minnesota where the hot season is only about six weeks or two months at the most, is no easy job. However, the Bilstad Co., Inc. of Fargo, N. D. has successfully demonstrated that it can be done by beginning their advertising campaign in the winter and pursuing an aggressive follow-up system.

"By spring we had some good prospects lined up that were developed into customers early enough so that their air conditioning system was installed ready for the first hot days. In this way they will benefit during the whole of the short season," says Dewey Dunweber.

"While 20 central installations from $3\frac{1}{2}$ to 15 tons, plus numerous room units, may not sound like much to dealers in a thickly populated area in the southern districts with a long hot season, it represented careful and early planning, with a lot of good hard work in covering a widely scattered territory in an agricultural country!" Mr. Dunweber adds.

Men's stores, dress shops, hotels, restaurants and bars have so far proven to be the best customers. Beauty parlors and barber shops would be good prospects if their income warranted installation at the present cost of air conditioning for such a short season, the company believes.

York Income Seen Over \$40 Million This Year

YORK, Pa.—Sales in excess of \$40,000,000 and a net income of more than \$2,000,000—or about \$2 a share on common after preferred dividends—are expected to be reported by York Corp. for the fiscal year ending Sept. 30. Such figures would establish new records.

York's best year to date for sales was 1945, when \$38,365,127 worth of equipment was sold. Sales during 1946 totaled \$32,052,000.

Net sales of \$31,928,125 and net income of \$1,633,987 were reported for the nine months ended June 30, with net equal to \$1.62 on common after preferred dividends. In the same period of 1946, sales totaled \$23,241,448 and net income \$791,062, or 85 cents on common.

The company's productive facilities are expected to be greatly expanded upon completion of a \$6,000,000 plant improvement and expansion program now being carried out.

Construction Started on New Apex Automatic Washer Plant

CLEVELAND—Construction of a new plant for final assembly and testing of a new automatic washing machine has been started here by the Apex Electrical Mfg. Co., C. G. Frantz, president, has announced.

He added that the new addition will provide facilities for quantity production of automatic washers without interfering with wringer type washers and ironers. He stated that he expected the new unit to be in operation next year.

Buy Steel Plant--

(Concluded from Page 1, Column 5) furnaces and three rolling mills, and should have sufficient output to supply the needs of all member manufacturers, according to Arnold H. Maremount, president of the group and executive vice president of Maremount Automotive Products, Inc., Chicago.

Any excess production, it was reported, will be sold to other steel consumers.

Involved in the purchases are the following Chicago firms:

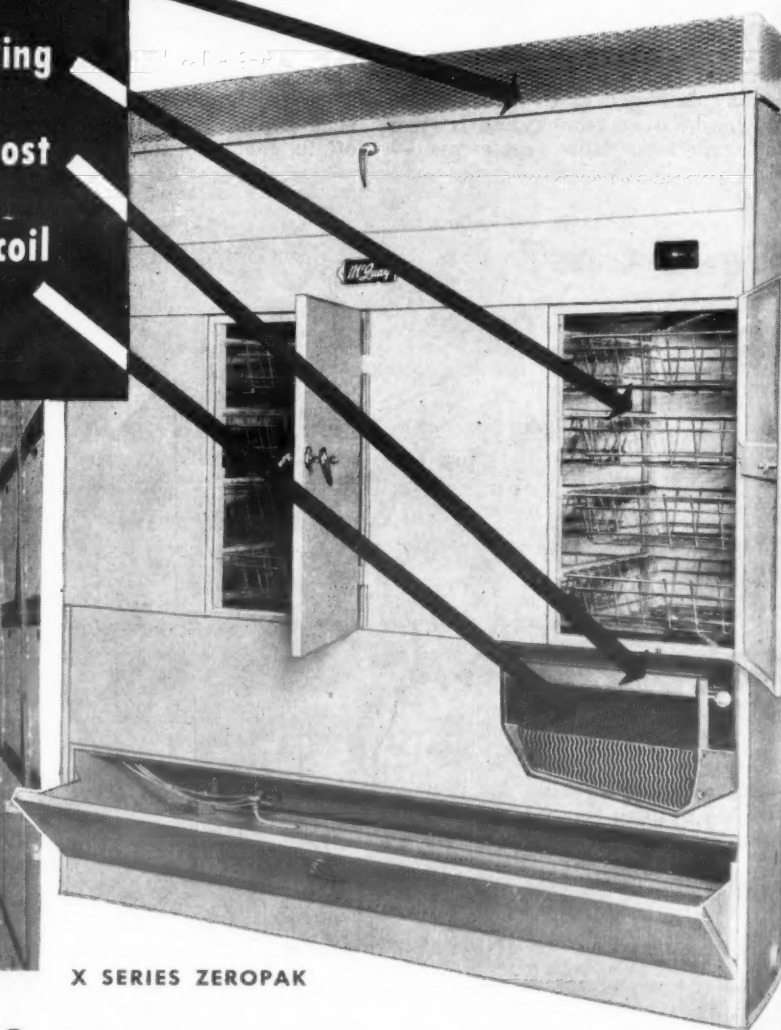
Maremount Automotive Products, Inc., Mitchell Mfg. Co., Advertising Metal Display Co., Accurate Perforating Co., Chicago Curtain Stretcher Co., Electro Mfg. Corp., Crescent Tool & Die Co., Webster-Chicago Corp., Pioneer Gen-E-Motor Corporation, and the Grand Sheet Metal Works.

Other members of the syndicate are the Steel Materials Corp., New York City; Pan American Trade Development Corp., New York City; Prentiss-Wabers Products Co., Wisconsin Rapids, Wis.; Western Stove Co., Inc., Culver City, Calif.; Proctor & Schwartz, Inc., Philadelphia; Kroehler Mfg. Co., Naperville, Ill.; Welbilt Stove Co., Inc., Maspeth, N. Y.; The A. P. Parts Corp., Toledo; B. & R. Iron & Metal Co., Inc., Syracuse; Keystone Steel Products Corp. of Brooklyn, N. Y.; Standard Pressed Steel Co., Jenkintown, Pa.; Atlas Tack Corp., Fairhaven, Mass.; Oakland Sheet Metal Supply Co., Oakland, Calif.; Gibson Refrigerator Co., Greenville, Mich.; and Poloron Products, Inc., New Rochelle, N. Y.

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ZER O PAK

High humidity locker cooling
High velocity tunnel freezing
High economy water defrost
High efficiency McQuay coil construction



X SERIES ZERO PAK

Combining high-velocity sharp freezing with high humidity locker cooling, McQuay low-temp ZERO PAK units play a dual role in locker plant operation. Big, economical McQuay coils provide cold air for fast, uniform freezing and moist air storage for keeping natural food flavors sealed in.

Tunnel freezing eliminates "freezer burn" because heat is uniformly removed from the entire surface of the product. Dehydration during storage is prevented by the high moisture content of the cooling air.

X SERIES ZERO PAK units incorporate exclusive hydraulically expanded McQuay coils, water defrosting, tinned wire baskets and many other features. See your refrigeration wholesaler today. McQuay, Inc., 1607 Broadway St. N. E., Minneapolis 13, Minn.

L SERIES ZERO PAK is designed for plant requirements up to 1500 lockers. In installations such as pictured above the L series ZERO PAK maintains proper temperatures in both the sharp freeze room and the locker room.

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